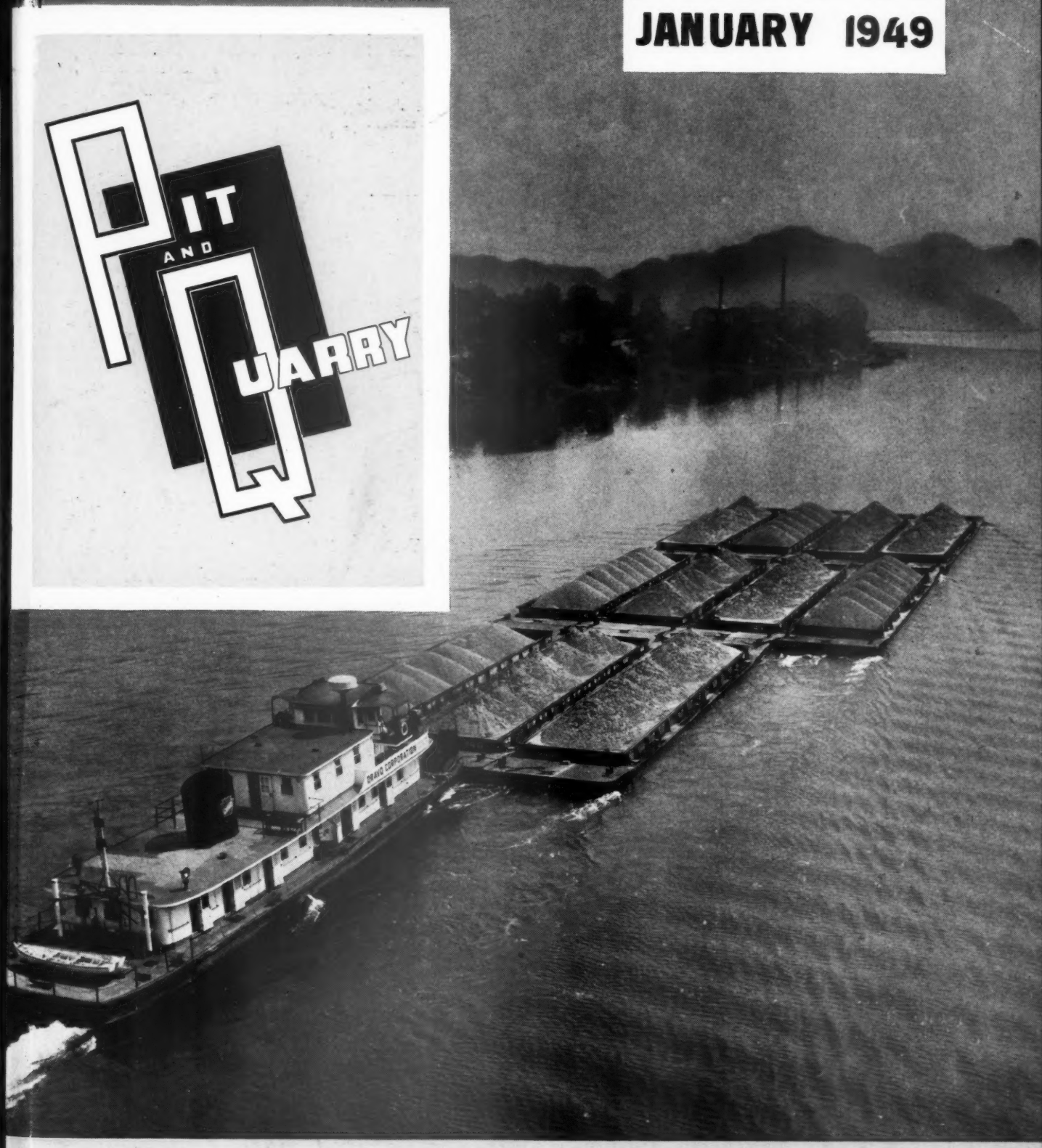
JAN 25 1949

PIT AND QUARRY

JANUARY 1949



Towboat William Pitt of Keystone Div., Dravo Corp., and Tow of Gravel Barges

e this Issue

Reviews and Previews of the Nonmetallic Minerals Industries
The Construction Picture • New Plants of Ideal Cement Co.
Programs of Agstone, Crushed Stone, Sand-Gravel Conventions

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Above photos show New Holland Double Impeller Breaker installation at Hudson Stone Products Company; also . . . actual size material as it comes from delivery conveyor before screening. Notice uniformity of shapes and sizes. This is the result of "Dual Impact" action! Breaking force evenly distributed assures accurate sizing without irregular shapes—even with slabby material!

"Crush more material to desired size with less power"

says
TOM HUDSON, owner,
Hudson Stone Products Company,
Lynchburg, Ohio

● Early in 1947, Tom Hudson modernized his plant. He replaced three units with a single New Holland Model 3030 Double Impeller Breaker.

From the layout of his plant which is indicated above, you can easily see what Mr. Hudson means when he says . . .

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In pits and quarries all over the world, "Dual Impact" action is producing outstanding results.

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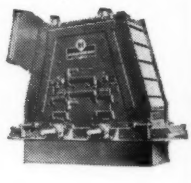
New Holland Double Impeller Breakers are available in four sizes—1212, 2020, 3030, 5050—to meet your requirements. They can be adapted easily to either an open or a closed circuit.

Whatever your crushing problems—bring them to New Holland engineers. They will help you as they have helped so many other operators. Write Department **P-19** today.



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NEW HOLLAND MANUFACTURING COMPANY, MOUNTVILLE, PA.

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WITH NEOPRENE INNER-BELT AND FILLER *COMBINED*

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New inner-belt construction operates cooler under extreme overloads

ANACONDA from mine to consumer

ANACONDA *Securityflex** **CABLE**

*An Anaconda Trade-Mark

Vol. 42 JANUARY 1949 No. 7

PIT AND QUARRY

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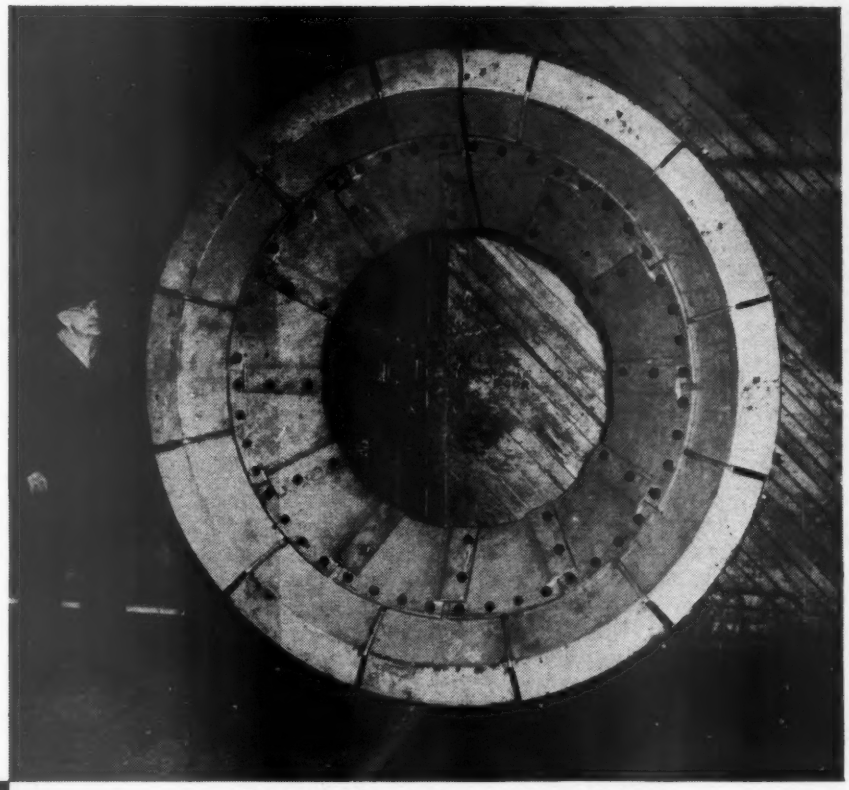

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Alloy Chilled-Iron Cone for Crusher

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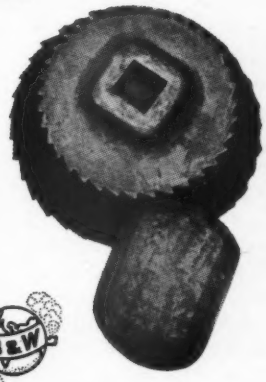

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C-83

editorial

Review and Preview

FOR this, the 33d Annual Review and Preview Number of PIT AND QUARRY, we have gathered together all available information on the conditions existing within the non-metallic minerals and affiliated industries during 1948, and on the prospects for 1949. Complete official reports on 1948 production, shipments, prices, etc., on most of these industries will not be available for from two to six months or more. We have, however, combined the partial official government or industry reports available with our own direct information and the answers to a questionnaire sent to hundreds of producers all over the country. On this information we have based articles which we believe give an accurate picture of conditions in 1948, and the prospects for 1949.

Review

The reviews printed in this issue show that the production and shipments of portland cement in 1948 set new high records, far ahead of the previous peaks reached in 1947. Indications are that production was about 204,000,000 bbls. and that shipments totaled about 203,000,000 bbls., 10 and 9 percent, respectively, above 1947. Less accurate information is available on aggregates production but it seems certain that new records were also set. Sand and gravel production, commercial and noncommercial combined, apparently topped the record 1947 volume of 287,659,000 tons by about 10 percent. The total crushed stone production (exclusive of cement and lime manufacture) was apparently up about 12 percent from the 1947 record of 206,136,000 tons.

Among the many other industries which are known to have set new records, some of them for the third or fourth consecutive years are: phosphate, sulphur, gypsum and gypsum products. Others on which less information is available but which are also believed to have reached new highs are: asbestos, barites, ball clay, bentonite, kaolin, potash, pumice, roofing granules, salt, slate, and talc.

The non-metallic industries as a whole, and their affiliated concrete units and ready-mixed concrete industries, reached a new peak in both production and sales in 1948. General but, in most cases, moderate price increases during the year also placed the total value of production far above that in any previous year.

Preview

The prospects for 1949 are difficult to predict with any degree of accuracy but previous estimates based on even less complete information have proved to be remarkably dependable over a period of years.

The various construction forecasts which we have combined in a feature article in this issue indicate that construction volume will probably at least hold its own with 1948. Business and manufacture will probably remain near the present level. While the prices for agricultural products will proably stay below the 1948 peaks, demand should stay near record levels. On the basis of the information available the total demand for non-metallic minerals in 1948 may set another new record in volume.

Your Convention Programs

JUST ahead are some of the most important conventions of the year for the non-metallic minerals industries including agricultural limestone, crushed stone, sand and gravel, and the related ready-mixed concrete and concrete masonry units industries. Each has prepared a program which contains so much of interest and importance to producers that the time and money spent in attending will be well justified. These conventions are: The National Agricultural Limestone Assn., Hotel Statler, Washington, D. C., January 18-20, 1949; The National Concrete Masonry Assn., Cleveland Auditorium, Cleveland, Ohio, January 31-February 3, 1949; The National Crushed Stone Assn., Hotel New Yorker, New York, February 7-9, 1949; The National Sand and Gravel Assn., and the National Ready Mixed Concrete Assn., Hotel New Yorker, New York, February 14-17, 1949; the Agricultural Limestone Institute, Edgewater Beach Hotel, Chicago, Illinois, February 21-22, 1949. These meetings are open to all producers, whether members of these associations or not.

These meetings will include addresses by leading authorities on timely and important subjects. Top association executives and technical directors, government bureau heads (even cabinet members) and research and business experts, and other experts are included. All types of problems affecting producers in these industries, directly or indirectly, nationally or locally, will be discussed. The best available advice will be given on present and future business conditions, governmental action, labor, equipment and material supply, availability of raw materials, shipment, costs, etc.

Open forums, which have become increasingly important features of these conventions in recent years, will again be included. These forums are informal, friendly affairs at which everyone is free to participate in discussions on the many problems confronting these industries.

This is an off-year for machinery exhibits at conventions as several associations which hold them every second year had exhibits in 1948 and will have them again in 1950. The one exception is the National Concrete Masonry Assn. which promises the biggest exhibit in its history. The other conventions will, however, be attended by the top engineers and sales representatives of many manufacturing concerns.

For complete advance information on the programs of the agstone, crushed stone, sand and gravel and ready-mix meetings turn to page 84-86 of this issue of PIT AND QUARRY. The complete concrete masonry convention program is printed on pages 14-15 of the Concrete Manufacturer section of this issue.

Plan to attend the meeting covering your industry and make your railroad and hotel reservations at once.

Walter E. Trauffer

news of the industry

PIT AND QUARRY

Annual A.I.M.E. Meeting Assures Attractions For Nonmetallic Producers

The program planned for the annual meeting of the American Institute of Mining and Metallurgical Engineers, to be held February 13-17 at San Francisco's Fairmont Hotel, devotes considerable attention to the nonmetallic minerals industries.

William Wallace Mein Jr., chairman of the San Francisco section of A.I.M.E. for 1948-49, in charge of general arrangements for the annual meeting, has scheduled several stimulating papers by leaders in this field. Included are addresses by Robert F. Blanks and Dr Allan Bates on alkali aggregate reaction; Robert A. Kinzie Jr., fuel economy in cement manufacture; and others on mining, quarrying and processing limestone, aggregates and other nonmetallics. Technical sessions will be held for all divisions of the institute. Proposed field trips include a tour of the Kettleman Hills and the Rio Vista gas field, Grass Valley, The Yuba gold fields, and the Permanente cement plant.

As this meeting, the second annual event held outside New York City, has been timed to coincide with the centennial celebration of the California gold rush of 1849, a large registration is expected. Members are urged to write at once for hotel reservations to the A.I.M.E. Housing Bureau, Room 200, 61 Grove Street, San Francisco 2. An additional attraction has been announced—a post-convention trip to Hawaii.

Keystone State Producers To Convene in Harrisburg

The Pennsylvania Stone Producers Association will hold its annual meeting on January 19 and 20, 1949, at 10:00 a. m. in the ballroom of the Hotel Penn-Harris, Harrisburg, Pa. All producers and marketers of aggregates in Pennsylvania, as well as the bituminous plant-mixed materials producers, have been invited to attend this meeting.

The Pennsylvania Department of Highways and the Pennsylvania Turnpike Commission will send representatives to present their material requirements for 1949. Regional directors of the Wage and Hour Division and the National Labor Relations Board will also be on the program to discuss the new interpretations by their respective departments. There will be a discussion of the school tax law.

The LeRoy Lime and Crushed Stone Corporation, LeRoy, N. Y., was awarded a prize in the Rochester district's New York State Insurance Fund accident reduction contest.

President Baker Announces National Gypsum's Plans To Cut Costs in '49 and '50

The National Gypsum Company's far-reaching program to slash $1,500,000 from certain of its costs in 1949 and another $1,000,000 in 1950 is beginning to shape up.

President Melvin H. Baker states that in the event of another round of wage increases he wants to be able to absorb them and hold prices. His own broad cost-saving program envisions these points: Readjustment of its ship-unloading facilities and techniques on the East Coast; standardization of high-speed production methods; standardization of new manufacturing methods, already proven but not yet developed to peak efficiency; better employee-training to increase worker productivity.

Mr. Baker points out that it is imperative to get the most in the way of economy, production and improved quality out of National's greatly expanded facilities. He says that net profits are rising because of greater volume of production.

Consolidated Feldspar Corporation is constructing a plant at Parkdale, Colo., which is said to be the second largest feldspar plant in the world. Mica and silica are also processed at Parkdale.

Coming Events

January 16-20, 1949 — Chicago. 30th annual meeting, Associated Equipment Distributors, Stevens Hotel.

January 18-20, 1949—Washington, D. C. Annual convention, National Agricultural Limestone Association, Hotel Statler.

January 27-29, 1949 — Detroit. 43rd annual convention, Sand-Lime Brick Association, Hotel Statler.

January 31-February 3, 1949—Cleveland. Annual convention and exposition, National Concrete Masonry Association, Cleveland Auditorium.

February 7-9, 1949 — New York. Annual convention, National Crushed Stone Association, Hotel New Yorker.

February 13-17, 1949—San Francisco. Annual meeting of American Institute of Mining and Metallurgical Engineers.

February 14-17, 1949—New York. 33rd annual convention, National Sand and Gravel Association, Hotel New Yorker.

February 14-17, 1949—New York. 19th annual convention, National Ready Mixed Concrete Association, Hotel New Yorker.

February 21-22, 1949—Chicago. Annual convention, Agricultural Limestone Institute, Edgewater Beach Hotel.

February 23-25, 1949—New York. 45th annual convention, American Concrete Institute, Hotel Pennsylvania.

February 28-March 4, 1949—Chicago. Spring meeting and Committee Week, American Society for Testing Materials, Edgewater Beach Hotel.

Lively Interest Shown in 3rd N.C.S.A. Short Course Scheduled for Feb. 2-5

An enthusiastic response to the National Crushed Stone Association's announcement of a third "short course" for salesmen has been reported by A. T. Goldbeck, the association's engineering director. Approximately 100 persons are expected to enroll in the course, which will be held in Washington, D. C., February 2-5, 1949. This number is far in excess of registrations in the two previous courses.

An association announcement states that the training class is for anyone engaged in marketing crushed stone, regardless of the amount of training he has had. All planning to attend this course are urged to send their names at once to Mr. Goldbeck. It is also suggested that reservations should be made at this time for hotel accommodations.

Agricultural Limestone Group Issues Timely Publication

Recently issued by the Agricultural Limestone Institute, a division of the National Crushed Stone Association, is an attractive and informative booklet entitled *About Agricultural Limestone*.

The stated purpose of the booklet is "to provide a brief, concise statement of facts concerning the important practice of applying agricultural limestone to the farmlands of the nation." The bulletin will be widely distributed among farmers, students in agricultural colleges, 4-H Clubs, vocational schools and similar groups. Several thousand copies have been purchased by members of the institute for distribution.

Ahearn Announces Changes in N.R.M.C.A. Convention Program

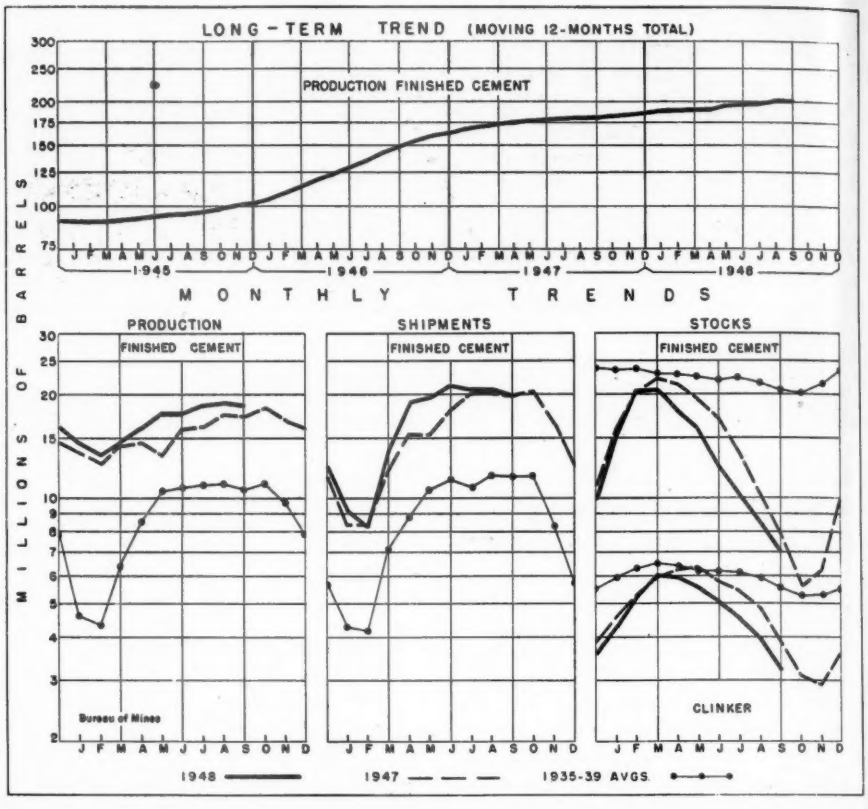
Vincent P. Ahearn, executive secretary of the National Ready Mixed Concrete Association, has announced that the manufacturers' reception scheduled for February 15, 1949, at the association's annual convention at New York's Hotel New Yorker will be held on the following evening, February 16 from 6 to 7 p.m. The change was made in order to accommodate another organization with which N.R.M.C.A. has cooperative relations.

This alteration in the date of the reception has necessitated a second change; and Stanton Walker's informal session on the design of concrete mixtures is now scheduled for the evening of February 15 at 8 o'clock.

Dates Announced for 1949 National Lime Assn. Meeting

Dates announced for the 1949 National Lime Association's annual convention — May 5, 6, and 7 — at Hot Springs, Va., will be found generally more auspicious than the earlier dates of the convention in April of last year.

A "first-class" program and consideration of the problems confronting the lime industry as a result of the outcome of the national election are expected to arouse active interest in the convention among members throughout the country. Convention headquarters will be The Homestead.



August summary—The portland cement industry produced 18,961,000 barrels of finished cement in August, 1948, as reported to the U. S. Bureau of Mines. This figure is 8 percent greater than that reported for August, 1947. Mill shipments totaled 20,704,000 barrels, an increase of 2 percent above the August, 1947, figure, while stocks of 8,406,000 barrels on August 31 were 20 percent below the August, 1947, totals. Clinker output in August, 1948, amounted to 18,487,000 barrels, representing an increase of 10 percent over the corresponding month of the previous year.

August production—The output of 18,961,000 barrels of finished cement in August, 1948, came from 146 plants located in 34 states and Puerto Rico, whereas in the same month of 1947, 17,480,000 barrels were produced in 147 plants. Clinker production increased 10 percent over the August, 1947, figure.

August shipments—Mill shipments of 20,704,000 barrels increased 2 percent above the August, 1947, figure. The demand for cement in August, 1948, as indicated by mill shipments, dropped slightly below the output for the previous month (July 1948)—20,994,000 barrels. Shipments were higher in 12 districts and lower in 7, than those reported in August, 1947.

September summary—The industry produced 18,605,000 barrels of finished cement in September, 1948. This figure is 7 percent greater than that reported for September, 1947. Mill shipments totaled 19,938,000 barrels, an increase of 0.5 percent above the September, 1947 figure, while stocks of 7,022,000 barrels on September 30 were 11 percent below the September, 1947, totals. Clinker output in September, 1948, amounted to 17,961,000 barrels, representing an increase of 9 percent over the corresponding month of the previous year.

September production—145 plants in 34 states and Puerto Rico produced 18,605,000 barrels of finished cement in September, 1948, whereas in the same month of 1947, 17,319,000 barrels were produced in 147 plants. Clinker production was 9 percent above the September, 1947, figure.

September shipments—Mill shipments of 19,938,000 barrels increased only 0.5 percent above the September, 1947, figure. The demand for cement in September, 1948, dropped slightly below that of the previous month (August, 1948)—20,704,000 barrels.

Eastern Firm Acquires Plant For Production of Fillers

Announcement of the purchase of a crushing plant and an adjacent limestone quarry near Wingdale, N. Y., by the Wingdale Chemical Corporation was made recently. The latter firm, a subsidiary of the D. H. Litter Company, purchased the property from the Reconstruction Finance Corporation through the War Assets Administration.

The plant, which is valued at $1,500,000, will produce filler and pigment extenders for the paint, varnish, linoleum and allied industries. Facilities include two crusher buildings, a finishing building, a water treating plant, a pilot plant and maintenance buildings. Also included is a two-mile aerial tramway from the quarry to the plant.

At Lorain, O., the engineering work has been completed on dust-collecting equipment which is to be installed at the National Tube Company's plant. The new system is reportedly capable of eliminating 92 percent of the dust from the atmosphere.

New York Trap Rock Corp. Sells Sand-Gravel Facilities To Colonial Sand & Stone

Announcement has been made by the New York Trap Rock Corporation and the Colonial Sand & Stone Co., Inc., of a purchase and sale agreement entered into between the two corporations involving the sale by the New York Trap Rock Corporation to the Colonial Sand & Stone Co., of the sand and gravel producing plant and properties at Roslyn, Hempstead Harbor on Long Island. The properties to be acquired by Colonial include all the former properties of the O'Brien Brothers Sand and Gravel Company at Roslyn, which were bought by the New York Trap Rock Corporation in 1947, together with a large-capacity plant which was completed in December, 1947. Included are 167 acres on what was formerly the Hewlett property and some 65 acres known as the Beacon Hill property.

The Colonial Sand & Stone Co. is the city's largest retailer of ready-mixed concrete, crushed stone and sand, doing business in all of the five boroughs of New York City as well as in the counties of Nassau, Suffolk and Westchester. Colonial also has sand and gravel properties in Garden City and Port Washington, Long Island.

The New York Trap Corporation is the owner and operator of six large crushed stone quarries on the Hudson River, from Haverstraw to Poughkeepsie, and sells its products through retail dealers in a territory including and between Albany, New York City, New Haven, Conn., Long Island and New Jersey. Closing has been set for December 31, 1948. The terms of the transaction were not disclosed.

Oklahoma Firm to Produce Agstone and Riprap

At Idabel, Okla., a new limestone processing plant is about to be opened by the McCurtain County Limestone Company. Products will be agricultural limestone and riprap.

Robert Honea, vice-president, and James Fisher, secretary-treasurer, stated that they have a 28,000,000-ton reserve under their lease.

First Post-War Shipments Of Belgian Cement Reach East Coast of U.S.A.

Exports of cement from Belgium's mills, suspended since the beginning of World War II, were recently resumed. Shipments from this area, formerly the largest source of cement export in Europe, were said to have been destined for consumption by users along the Eastern seaboard. Prohibitively high transportation costs to points further inland reportedly account for this fact.

The imported cement, however, is priced well above domestic levels; and shipments are consequently being taken to areas of tight supply, chiefly in the Southeast. In Florida, destination of some of the Belgian cement, supplies of domestic brands have been sharply reduced because of the recent changeover to f.o.b. pricing, which has resulted in price increases on shipments from out-of-state mills. Florida now has only one cement plant operating — that of the Tampa Portland Cement Company, a General Portland Cement subsidiary.

Since the cessation of hostilities Belgium's cement production has risen from 1,900,000 metric tons (1946) to 2,600,000 (1947). More than 1,000,000 tons of the 1947 output was exported, the bulk of the shipments going to other European countries, Africa and South America. During the first half of 1948 Belgian mills produced 1,680,000 metric tons—a rate higher than the average for the 1936-1938 period.

• Shown in this aerial view are three 250-ft.-diameter Dorr "Torq" thickeners installed in an earthen basin 775 ft. long and 275 ft. wide at the Pennsylvania Glass Sand Corporation's plant near Berkeley Springs, W. Va. Providing nearly 5 acres of surface area and a capacity of 14,500,000 gallons per 24-hr. day, it is reportedly one of the largest installations of its kind in the world. Built in 1946-47 to clarify silt-laden wash water from the company's sand washing operations, the installation was essential to insure an adequate plant water supply. The dirty water comes from a battery of Dorr F classifiers used for washing sand in the reduction building, then passes through a Dorr hydroseparator for the removal of fine sand before final settling.

Gonnerman, Woods Take New P.C.A. Posts— F. R. McMillan Retires

Three important changes in the research personnel of the Portland Cement Association have been announced by Dr. A. Allan Bates, the association's vice-president for research and development.

On December 1, 1948, Harrison F. Gonnerman, director of research, was advanced to the position of assistant to the vice-president for research and development. Mr. Gonnerman fills the vacancy created by the retirement from active service of F. R. McMillan, who has held that post since January, 1947.

Hubert Woods, research director of the Riverside Cement Company of Los Angeles, Calif., since 1926, has been chosen director of research for the association; he will assume his new duties early in January, 1949.

Mr. Gonnerman joined the association staff in 1922 as an associate engineer, and served as manager of the research laboratory from 1927 until January, 1947, when he was appointed director of research. Prior to joining the association, he held several teaching and research positions at the University of Illinois and had engaged in private business in Los Angeles.

Mr. Gonnerman has twice received the Wason Medal of the American Concrete Institute for noteworthy research, and is past-president and a member of the board of directors of that organization. He is also a member of the American Society for Testing Materials, the Western Society of Engineers, the American Society of Civil Engineers, Tau Beta Pi honorary engineering society, and Sigma Xi honorary scientific society. The author of numerous papers, books, bulletins and pamphlets relating to concrete, he holds a Bachelor of Science degree in Civil Engineering and a Master of Science degree from the University of Illinois.

Harrison F. Gonnerman

Mr. McMillan's retirement from active service comes after 24 years with the association, which he joined in 1924 as an associate engineer. He was appointed manager of the Structural Bureau in 1926, director of research in 1927, and assistant to the vice-president for research and development in January, 1947. Before joining the association staff, he was engaged in railroad and irrigation engineering, building construction, and as an instructor and assistant professor at the University of Minnesota.

Mr. McMillan holds a Civil Engineering degree from the University of Minnesota, is a past president of the American Concrete Institute, and a member of the American Society of Civil Engineers and the American Society for Testing Materials. He is the author of numerous papers on cement and concrete research.

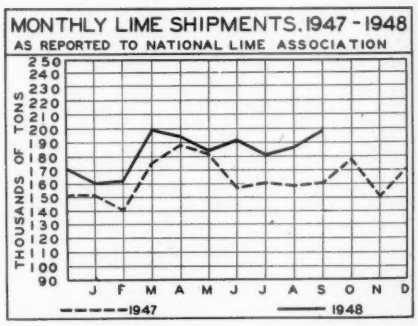
Franklin R. McMillan

Retirement of Mr. McMillan's was to have been effective November, 1947. He was requested to remain with the association for another year as assistant to the vice-president in charge of research and development. This arrangement was made to facilitate further progress with projects he had directed during his years of service. In the future he will continue to serve in a consulting capacity.

Mr. Woods, who will join the association staff directly from the Riverside Cement Company, entered the employ of that company in 1923. In 1925 he was made chemical engineer, and organized its research department the following year. Since 1926 he has been research director, and in 1934 took on the additional duties of chief chemist. He is the author of various technical papers on cement and cement manufacture, is a member of Sigma Xi, the American Society for Testing Materials, and the American Concrete Institute. He is also a past chairman and now a member of two subcommittees of the General Technical Committee of the Portland Cement Association, and a member of its Advisory Committee of the Long Time Study of Cement Performance in Concrete. He was graduated from California Institute of Technology in 1923 with a Bachelor of Science degree in Chemical Engineering.

Hubert Woods

Losses estimated at $100,000 resulted from a fire of undetermined cause at the Regal asbestos mine near Globe, Ariz., which destroyed the mill, machine shop and storage building. The Arizona Chrysotile Company operates the mine.



According to data collected by the National Lime Association, 45 companies in September, 1948, shipped 198,631 tons of lime (122,838 quicklime; 75,793 hydrate). Reporting companies represent 51.9 percent of the association members' total capacity of record. Based on Pit and Quarry's estimate for the remainder of the industry, the total shipments for the month by all plants were approximately 421,000 tons. Shipment by uses and grades for September, 1948, were:

	Quicklime (tons)	Hydrate (tons)
Agricultural	1,397	10,064
Building	14,288	41,164
Chemical	107,153	24,565
Totals	122,838	75,793

Solvay Process Closes Winnfield Operation—Buys Columbia Quarry Property

According to recent local press reports from Winnfield, La., operations will be suspended by February 1 at the Solvay Process Division's quarry near that city. (Solvay Process is a division of Allied Chemical and Dye Corporation.)

Exhaustion of the quarry supplies of rock suitable for the needs of the Baton Rouge soda ash plant is the reason given for plans to discontinue operations at Winnfield. The quarry has been operated almost continuously since 1908.

According to H. C. Krause, president of the Columbia Quarry Company, St. Louis, Mo., his firm on November 16, 1948, sold to the Solvay Process Division 675 acres of stone land, certain pieces of equipment and a portion of its plant at Prairie du Rocher, Ill. Columbia retained 1000 acres of limestone deposits and a considerable number of pieces of equipment.

The transaction, stated Mr. Krause will enable the Allied Chemical and Dye Corporation to furnish its plant at Baton Rouge, La., approximately 725,000 tons of 8- 1 / 2-in. kiln stone per year. The purchase of the property at Prairie du Rocher will obviate the building of a new plant on the firm's recently acquired site at Illmo, Mo.

Mr. Krause also said that Columbia Quarry Company "retains exclusive sales rights on all surplus stone smaller than 2 inches in size, and in view of Columbia Quarry Company's sales being confined to 2-in. minus prior to the sale . . . there will be no appreciable change in products or tonnage to any of its customers."

Government Technical Report On Light Aggregates Available

Publication of *Properties of Assorted Lightweight Aggregate Materials* by Corwin D. Willson has been announced by the Hobart Publishing Company, Inc., Box 4127 Chevy Chase Branch, Washington 15, D. C. This government technical report is described as "one of the most thoroughgoing research studies of many years." It contains 200 pages and 16 illustrations.

Among the subjects covered are the following: summary of the patent situation; most promising materials used—organic and inorganic fibers, other aggregates, binders, admixes, fillers, stabilizers, etc.; mixing techniques — dry and wet mixing; most promising test results; correlation of test data; N.H.A. study of housing costs; and specific problems. Price, $7.50.

Eight Furnaces Ordered for New Argentine Lime Plant

A new lime plant is under construction in the Rio Negro Valley in Argentina by Bradbury Brothers & MacDonald.

Burning of the stone will be done in a battery of eight Nelson inclined furnaces, purchased on a $100,570 contract from the Victor J. Nelson Engineering and Construction Co. of Glendale, Calif.

The installation is being supervised by W. H. Judy, chief engineer, Tecnica Industrial Haedo, Buenos Aires, the Argentinian agent of the Nelson organization.

Iowa Community Served by Three New Sand-Gravel Plants

Sand and gravel operations have been booming in the vicinity of Sumner, Ia., where three firms have established new plants. The Reisner Sand and Gravel Company is operating at a location 10 miles northeast of Sumner. Owners Lloyd Reisner and C. G. Nieman, who formerly ran a plant near their present location, produce concrete sand, pea gravel mortar sand and concrete rock.

At their plant 8 miles east of the city Carl and Ed Zupke are turning out washed sand, pea gravel and 1-in. rock. Oscar Nolte's plant, 11 miles south of Sumner, washes 250 tons of sand per day.

LaFarge Signs Haddock To Head New Concern's American Sales Force

Gerald T. Haddock, formerly with the Universal Atlas Cement Company, was recently named American sales representative of Lafarge Aluminous Cement Co., Ltd., of London. Mr. Haddock will head an affiliate organization, to be known as Ciment Fondu Lafarge Corporation, in the interest of distributing an aluminous hydraulic cement widely used in making refractory concrete.

The product is made from limestone and bauxite and is quoted in this country at about three times the price of ordinary portland cement. Originally produced in France and England during World War I, aluminous cement has been manufactured in the United States since 1924 by the Lumnite Division of Universal Atlas at Buffington, Ind. It is sometimes called "overnight cement" because of the short (24-hour) period in which it hardens.

Walter C. Russell Appointed Chairman of P.C.A. Board

Walter C. Russell of Detroit, Mich., president of the Peerless Cement Corporation, was elected chairman of the board of directors of the Portland Cement Association at its recent annual meeting in Chicago. He succeeds Joseph S. Young of Allentown, Pa., president of the Lehigh Portland Cement Co., who has served as chairman of the board for the last two years.

Mr. Russell, as a member of the association's special committee on building facilities, has taken a prominent part in planning for the P.C.A.'s new research laboratory now under construction near Chicago. As a member of the board of directors and of the general technical committee, he has long been active in association affairs.

During World War I Mr. Russell was an engineer with the Emergency Fleet Corporation. From 1919 to 1922 he was assistant city engineer of the city of Flint, Mich. For 11 years prior to 1933, he was a contractor and engineer in Detroit. He became vice-president of the Peerless Cement Corporation in 1933, and served in that capacity until he was elected president in 1942. During World War II he was a member of the Cement Industry Advisory Committee of the War Production Board. He is an active member of the American Society of Civil Engineers.

Other officers elected at the same meeting included the following: Frank T. Sheets, president; C. D. Franks, vice-president for promotion; A. Allan Bates, vice-president for research and development; W. D. M. Allan, secretary; A. J. R. Curtis, assistant secretary; A. B. Stall, treasurer; E. F. MacArthur, assistant treasurer; G. H. Bottum, auditor.

Joseph S. Young

Walter C. Russell

Results of Explosives Tests Published in Report Of U. S. Bureau of Mines

Shaped explosives charges used effectively by American armed forces in demolition and for penetrating armor during World War II are too hazardous and expensive for use in blast-hole drilling in underground mines, according to a report of investigations released recently by the U. S. Bureau of Mines.

Issued as Part I of a study of the application of shaped explosive charges to underground mining, the report gives the results of extensive tests carried out by the Bureau in cooperation with the Army's Engineer Research and Development Laboratories in the use of military-type demolition charges in the preparation of blast holes.

The experiments, conducted at the Bureau's Mt. Weather, Va., testing tunnel, showed that the cost of blasting drill holes with shaped charges was approximately $8 per foot or "more than 20 times that of producing a better hole with a rock drill." Furthermore, the concussion produced by the shaped charges would prohibit their use in many mines, the publication points out. When pentolite is the explosive used in the charge, the liberation of excess carbon monoxide creates an additional hazard.

During the experiment, two series of tests were made with 15- and 40-lb. military-type charges on both hard and soft rock formations. Full-page photographs of the blasting equipment, as well as detailed descriptions of the testing procedures employed in the study, are given in the report.

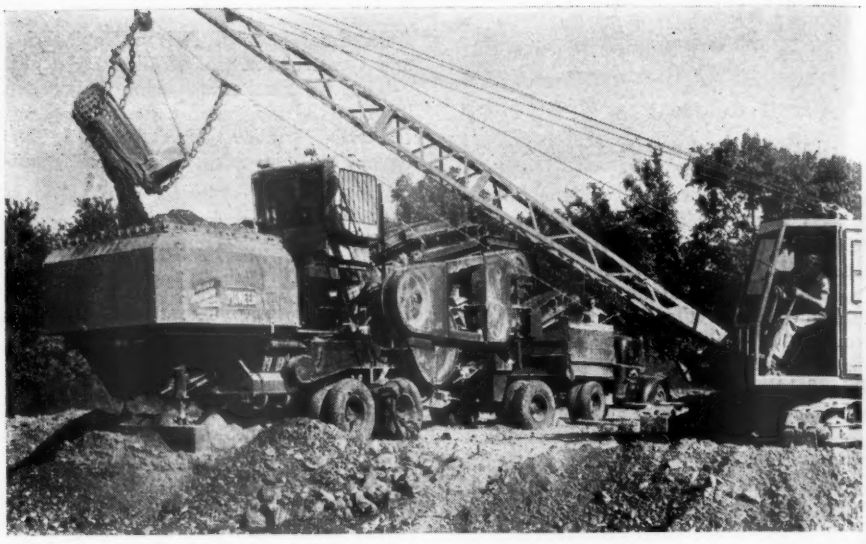
The publication was prepared by Hiram C. Draper, general engineer of the Obstacle and Demolition Branch of the Army's Engineer Research and Development Laboratories at Fort Belvoir, Va., James E. Hill, Bureau mining engineer stationed at Bluemont, Va., and Wing G. Agnew, Chief of the Mount Weather Branch of the Bureau's Mining Division.

Free copies of Report of Investigations 4371, *Shaped Charges Applied to Mining, Part 1.— Drilling Holes For Blasting,* may be obtained by writing to the Publications Section of the U. S. Bureau of Mines, 4800 Forbes Street, Pittsburgh, Pa.

N.L.A. Distributes Graphs On Last Wage Rate Survey

According to word received from Robert S. Boynton, general manager of the National Lime Association, this group has recently completed a study of wage rate trends for the 1944-1948 period. All lime plants participating in the seventh wage rate survey received copies of this study, arranged in the form of a graph.

Data received from the 37 plants taking part in the seven surveys were compiled by the N.L.A. to form the basis of the study. Among the concerns were large and small, as well as rotary and vertical kiln lime plants, distributed over a wide geographic area. It was felt that the types participating adequately represented the industry. Mr. Boynton stated that the survey was based on only one job classification, first-class mechanics, which appeared to be standard for survey participants.



• Seen in the accompanying illustration is a Pioneer 34S duplex crushing, screening and loading plant at work for J. R. Burd & Son, Jefferson City, Mo. This portable plant is designed for fast-moving construction and rapid maintenance jobs. The composite outfit incorporated a jaw crusher which handles boulders up to 8 inches in diameter; a roll crusher; a 2½-deck vibrating screen, two-bearing eccentric type; and a mechanical feeder, 24-in. reciprocating plate type with anti-friction bearings and hardened steel rollers.

Asphalt Institute Officers Named at Annual Meeting

At the annual meeting of the Asphalt Institute, held in New York City on December 1, 1948, N. H. Angell, Standard Oil Company of California, was elected president and executive committee chairman for the ensuing year.

N. H. Angell

Other members of the executive committee chosen were A. M. Maxwell, Standard Oil Company (Ohio), Cleveland; Sidney Goldin, Shell Oil Company, Inc., New York; D. H. Jenks Jr., Ashland Oil & Refining Company, Ashland, Ky; E. E. Scholer, Shell Oil Company, Inc., St. Louis, Mo.; O. D. Bridges, Houston, Tex.; W. L. Spencer, Union Oil Company of California, Los Angeles.

Re-elected to their former offices were Bernard E. Gray, general manager-chief engineer, and Herbert Spencer, secretary. New officers chosen included George R. Christie, treasurer; and J. N. Smith, assistant treasurer.

Howard H. Leh of Keystone Dies Unexpectedly at 59

Howard H. Leh, 59, vice-president and general manager of the Keystone Portland Cement Co., Bath, Pa., died on December 5 while on a visit at Allentown, Pa. He had been connected with the cement industry since 1907, serving at various times as a chemical engineer, consulting engineer and general superintendent.

Mr. Leh was a director of the Limestone Products Corporation of America, Newton, N. J., and a committee member of the American Society for Testing Materials. He was appointed general manager of the Keystone Portland Cement Co. in 1929 and was named vice-president in 1944.

In earlier years Mr. Leh was associated with the Penn Allen Cement Co. (Penn-Dixie), Phoenix Portland Cement Company, now the Lone Star Cement Corporation, at Nazareth, Pa., and with Lehigh Portland Cement Company's plant at Mason City, Iowa.

England's Dollar Famine Hits Lime Company in United States

Indirect effects of Britain's lack of dollars are being noted in several industrial fields in the United States, such as nonmetallic minerals. A case in point is the recent experience of the New England Lime Co. of Adams, Mass.

Although sales for this firm in the January-September period of this year surpassed the 1947 figure for the same period by more than $150,000, costs and selling expenses rose from $728,427 in 1947 to $918,496, resulting in a sharp drop in net income from $61,992 or 90 cents per share last year to $35,477 or 52 cents a share.

According to A. C. Loomis, president of the firm, the decline can be traced to the company's output of calcium carbonate. Had the profits on this product kept in line with other items, says Mr. Loomis, the volume increase would have compensated for the higher cost charges. The largest single consumer of the firm's precipitated calcium carbonate is the cigarette paper manufacturing industry, he explained, and orders from this source fell off when Britain stopped all purchase of cigarette paper in the United States because of her dollar shortage.

Congressional Action on Base Point Pricing Urged by Union Official in Hearing

William Schoenberg, president of the United Cement, Lime and Gypsum Workers Union (A.F.L.), has joined businessmen in urging Congress to provide for the legalization of the basing point pricing method.

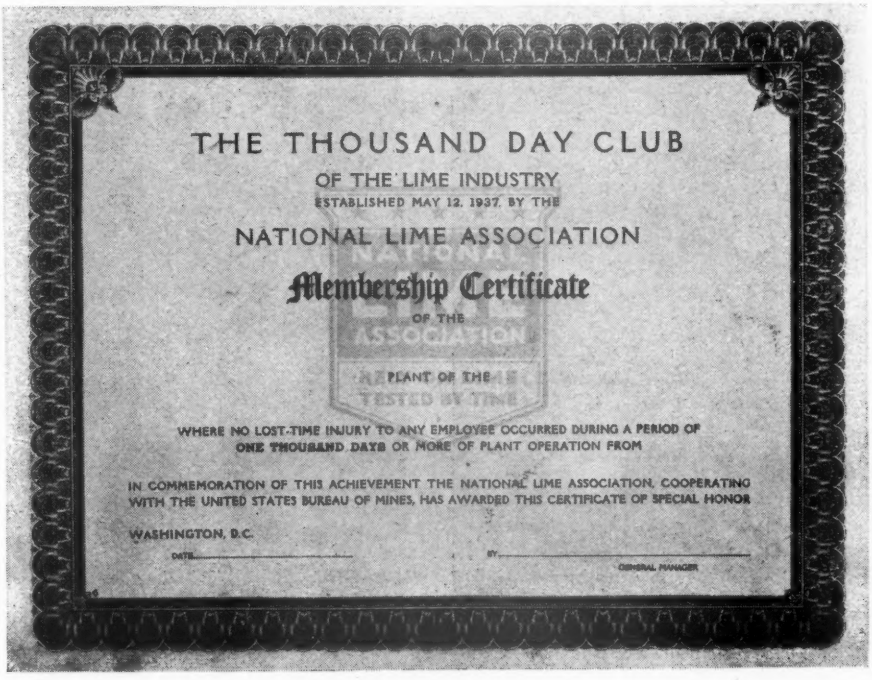
Mr. Schoenberg was one of a number of witnesses at the Senate subcommittee's hearings on the economic effects of the Supreme Court's decision forbidding the basing point system in the cement industry. He pointed out the impracticability of cement workers of his union migrating to new plant locations, which he said would be a result of the court's ruling.

J. E. Baker Company Plant Wins 1000-Day Club Certificate

At the recent Operating Division Meeting of the National Lime Association held at The Palmer House in Chicago on November 4, 1948, the Thomasville (Pa.) plant of The J. E. Baker Company was awarded a Thousand-Day Club certificate. Presentation was made by William T. Harvey Jr., chemical engineer, National Lime Association, to John A. Sechrist, superintendent of the Thomasville plant. Any lime plant which has completed 1,000 days or more of accident-free operation is entitled to receive an appropriate certificate of membership in The Thousand-Day Club, an activity established by the National Lime Association's board of directors in 1937. (See illustration below.) This project is conducted in cooperation with the U. S. Bureau of Mines.

It was revealed that the Thomasville plant has worked 1,965 days, or a total of 425,000 man-hours, without a lost-time accident. The J. E. Baker Company has been enrolled in the National Lime Association Annual Safety Competition since its beginning in 1935. During this 13 year period the firm has received ten safety certificates. It is the eighth company to merit a Thousand-Day Club certificate.

Following presentation of the membership certificate, Mr. Sechrist briefly outlined his company's safety policy, which stresses thorough indoctrination of new employees and constant reminders to "old hands."


THE THOUSAND DAY CLUB
OF THE LIME INDUSTRY
ESTABLISHED MAY 12, 1937, BY THE
NATIONAL LIME ASSOCIATION
Membership Certificate
OF THE
PLANT OF THE
WHERE NO LOST-TIME INJURY TO ANY EMPLOYEE OCCURRED DURING A PERIOD OF
ONE THOUSAND DAYS OR MORE OF PLANT OPERATION FROM
IN COMMEMORATION OF THIS ACHIEVEMENT THE NATIONAL LIME ASSOCIATION, COOPERATING
WITH THE UNITED STATES BUREAU OF MINES, HAS AWARDED THIS CERTIFICATE OF SPECIAL HONOR
WASHINGTON, D.C.
DATE
BY
GENERAL MANAGER

• Left to right: Howard Bird, U. S. Bureau of Mines; Roger Shelton, State Division of Safety; Orison Zumwalt, Permanente Quarry superintendent; John Garoulte, works manager.

Workmen at the Warner Company's McCoy plant have installed a No. 205 K.D. Dustube Collector, manufactured by the American Wheelabrator & Equipment Corporation.

Permanente Quarry Crews Win Mines Bureau Safety Awards

Permanente Cement Company quarry crews of the Permanente, Calif., plant recently received two U. S. Bureau of Mines safety awards at a dinner and presentation ceremony. It was the third consecutive year the crews won the Joseph A. Holmes trophy and the second consecutive year they received the Sentinels of Safety citation.

Especially commended for their safety work were John Garoutte, works manager, and Orison Zumwalt, quarry superintendent.

The Permanente quarry was the only one in California to qualify for the Holmes award, and is one of only two quarries in the state to win the Sentinels trophy, which is sponsored by *Explosives Engineers Magazine.*

Bellefonte Power Substation Opened by The Warner Company

First unit to be completed in the $100,000 electric power improvement program launched by The Warner Company was the substation opened recently at Bellefonte, Pa.

Three transformers handle 1,000 kilowatts and reduce incoming power from 2,300 volts to 460 volts for plant use. The upper floor, on the road level, contains ten 2,300 volt circuit breakers, a battery of 460-volt breakers, storage batteries to operate the breakers, and the office of the chief electrician, Fred Lose. The lower floor will serve as a repair and maintenance shop. A tunnel beneath the shop floor provides space for outgoing 2,300-volt and 460-volt lines.

Efforts to reclaim the depleted soil of East Africa have been given new impetus by mining of extensive phosphate rock deposits in Uganda. To the processed phosphate rock will be added soda from Magadi (Kenya) and nitrate processed at Owen Falls, near the source of the Nile. This fertilizer will be used to restore the fertility of Uganda farmland.

• Henry G. Huschke, A. L. I. managing director, at the institute's exhibit. At the left is the $12,000 miniature crushing plant.

Second Annual Exhibit of Agr. Limestone Institute Held at Farm-Garden Show

Continuing its efforts in promoting the use of agricultural limestone, the Agricultural Limestone Institute conducted its second annual exhibit and booth at the National Farm and Garden Show which was held at the Coliseum at Chicago, November 27 through December 4, in conjunction with the International Livestock Exposition.

Free raffle of a carload of agricultural limestone, to be purchased from the producer located nearest the winner and delivered f.o.b., drew generous response.

A miniature Telsmith crushing plant, complete in every detail and operating with real limestone, was supplied for the occasion through the courtesy of the Smith Engineering Works. The model is said to have cost $12,000.

Included also in the exhibit were a series of enlarged photographs showing the value of liming for agricultural purposes and a soil-testing display which consisted of a complete soil-testing kit and an accompanying booklet of instructions supplied by the Sudbury Laboratory.

The booth attracted an estimated 7,000 persons, of whom about 4,000 inspected the exhibits in detail and posed inquiries. One visitor from France, an exchange student and owner of a 150-acre farm in that country, said that liming is widely used on the Continent.

Among those assisting Henry G. Huschke in his able direction of the A. L. I. exhibit were: K. K. Kinsey, Concrete Materials and Construction Co., Cedar Rapids, Ia.; W. E. Hewitt, East St. Louis Stone Co., East St. Louis, Ill.; W. E. Kearn, Consumers Co., Chicago, Ill.; C. A. Bernard, American Limestone Co., St. Louis, Mo.; E. L Heckathorn, Stuntz-Yeoman Co., Delphi, Ind.; and J. L. Fay, Materials Service Corp., La Porte, Ind.

• E. L. Heckathorn (foreground) and C. A. Bernard (background) are seen taking registrations for the free carload of limestone.

J. V. Dorr Heads Board Of Dorr Co.—E. R. Ramsey Succeeds as President

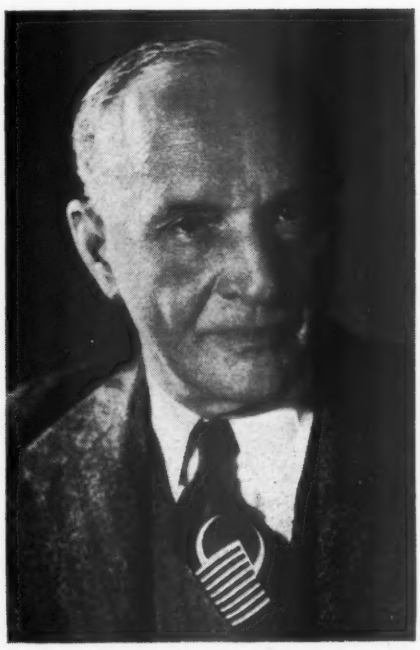
The Dorr Company, Engineers, New York, N. Y., announces the election of Dr. John V. Dorr, founder and former president of the company, as chairman of its board of directors Dr. Dorr also continues as chairman of the board of Dorr-Oliver, Ltd., London. Concurrently, Elmer R. Ramsey, formerly operating vice-president, who has been associated with the firm for the last 34 years, succeeds Dr. Dorr as president.

Dr Dorr has seen the firm he founded about 40 years ago develop from a one-man organization into an international buisiness As an inventor, he gained worldwide recognition by developing more than 20 industrial devices, among them the Dorr classifier, the Dorr thickener, the Dorr agitator and modifications of these machines. With his staff he has made possible the conversion of intermittent chemical processes to continuous ones, and has contributed to the large-scale, low-cost exploitation of low-grade ore deposits. In addition, the Dorr team has placed municipal and industrial sewage and water treatment on a sound engineering basis.

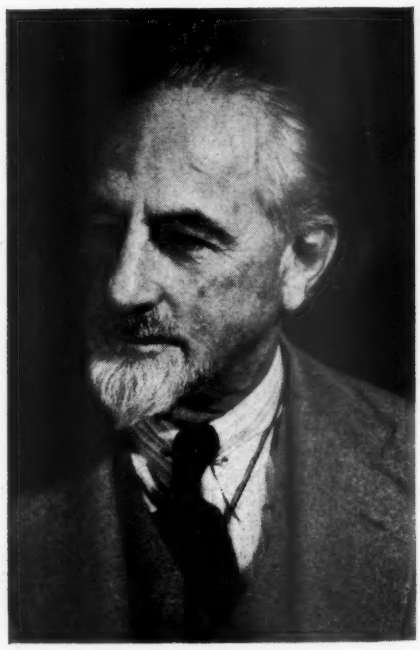
John Van Nostrand Dorr was born in Newark, N. J., January 6, 1872. His training began at the age of 16 when he entered the Thomas A. Edison laboratory at Orange, N. J., as a laboratory assistant. In 1894 he was graduated from Rutgers University, after which he spent a year in New York in industrial chemical research.

From 1895 to 1910 he was engaged in various activities in the field of chemical research in the western part of the United States. It was during this period that he invented the classifier, the thickener and the agitator. In 1910 the Dorr Cyanide Machinery Company was formed and incorporated in Denver, to

(*Continued on page* 83)



Elmer R. Ramsey



Dr. John V. Dorr

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE theme of the January, 1919, issue of PIT AND QUARRY was one of complete optimism for the immediate future of the aggregates, cement and other nonmetallic minerals industries. The lead article pointed out the necessity for getting plants in shape for the terrific demands expected during the coming construction season. Producers were urged to make up at once for the neglect from which most plants necessarily suffered during World War I. It was also emphasized that labor would become too expensive to be supplied with anything but the most efficient machinery.

The main editorial pointed out the tremendous potential demand for road building materials to repair the damage done to existing roads by the heavy wartime traffic and to build new roads to accommodate the greatly expanded and rapidly increasing volume of truck traffic. Producers were urged to do everything possible to prepare for this demand and to get wholeheartedly behind the "better roads" movement.

Various reasons were given throughout this issue of PIT AND QUARRY for the anticipated highway construction boom. Perhaps the most important was the excessively high rail freight rates which were encouraging truck competition. The editor stated that comparisons of freight rates under the losing government operation showed that sand and gravel, crushed stone and other nonmetallic minerals paid high rates which helped to reduce the deficit on other less profitable freight.

Association activities and conventions were and still are an important feature at this time of the year. Announcements were made of the coming conventions of the National Association of Sand and Gravel Producers, the National Crushed Stone Association, the National Slag Association, the Lime Association, the Indiana Sand & Gravel Producers' Association, the Ohio State Macadam Asosciation, the Ohio Sand & Gravel Producers' Association and others.

The important feature of the national sand and gravel meeting was to be the adoption of a new constitution. A new office was to be created also for a general manager who would devote all of his time to the association and carry on some intensive promotional work. A proposed change in methods of financing the association was also to be considered. The proposal was to replace the present flat annual fee plus subscriptions with an annual assessment on a tonnage basis.

At the national crushed stone meeting methods of financing were also to form an important part of the discussion. Among the many other subjects slated to receive attention were: reduction of freight rates; fair prices for ballast; open price system of competition—anti-trust law; production cost and cost keeping to govern prices; standard stone sizes as a profit source; welfare work — personal comfort of employees—bonus system—piecework—wage scales, etc.; national association as a clearing house to dispose of surplus machinery and operating equipment; increasing profits by decreasing expenses.

Among the many reports of conventions already held was a brief one on the Portland Cement Association. It was announced that William M. Kinney had been appointed general manager, a position he held for many years, later becoming vice-president for advertising and promotion until his retirement on October 1, 1947. Mr. Kinney came from the Universal Portland Cement Co., where he was inspecting engineer and engineer of promotion.

The Indiana Crushed Stone Association held a successful annual meeting at Indianapolis on December 17, 1918. All the members were present and F. W. Connell was re-elected secretary.

At a two-day meeting in Louisville, Ky., late in November, 1918, the Kentucky Crushed Stone Association was launched. At another meeting on December 18 the temporary organization became a permanent body. The officers elected were: president, W. J. Sparks, Mt. Vernon; vice-president, F. W. Katterjohn, Paducah; secretary and treasurer, R. B. Tyler, Louisville.

The Wisconsin Mineral Aggregates Association was organized on December 19, 1918, in Milwaukee at a meeting attended by 30 crushed stone and sand and gravel producers. The officers elected were: president, J. C. Buckbee, Chicago; secretary-treasurer, I. M. Cliquennoi, Milwaukee.

This issue also contained a report on the Highway Congress which met in Chicago the second week in December. It was held under the joint auspices of the Association of State Highway Officials and the Highway Industries Association. The chief aim of this meeting was the endorsement of the development of an intensive federal highway program through the creation of a Federal Highways Commission. The sentiment of the congress was expressed in the form of a resolution.

There was also a report on the virtual completion of one of the largest mergers ever to take place in these industries. This 3-million-dollar consolidation formed the New York Trap Rock Corporation of New York City, bringing together seven concerns with eight large plants, seven on the Hudson River and one in Connecticut. The two principal companies involved were the New York Trap Rock Co. and the Upper Hudson Blue Stone Co. Officers of the new corporation were: Nathaniel D. Lancaster, president; Mortimer D. Wandell, vice-president; James J. Shaw, vice-president; R. W. Jones Jr., treasurer; R. E. Desbernini, secretary.

Oliver Bowles contributed another important article to that issue, on "Rock Quarrying for Cement Plants." In this he gave sound advice on the selection of methods of development and removal, comparing the various methods and types of equipment then in use. Other important articles told of economical loading methods, the production of pit-run gravel for concrete, the yields of stone in tons per pound of explosives, etc.

J. V. Dorr Heads Board

(*From page* 82)

be followed in 1916 by The Dorr Company.

After his associates, William Russell and H Norman Spicer, had made trips abroad in the interest of the firm, the Dorr organization began to assume worldwide significance. Today Dorr technical services and equipment are available in Belgium, France, Great Britain, Italy, the Netherlands, and elsewhere in the world.

In 1917 Dr. Dorr established a laboratory and pilot plant near Westport, Conn., where three types of work are carried on: general testing to assist sales, research and development for the company, and consulting engineering for clients. Although he has commercialized his inventions with signal advantage to those who have shared his progressive spirit, Dr. Dorr takes more pride in the development of his staff than in his mechanical triumphs. He is a member of the American Institute of Mining and Metallurgical Engineers, the American Electro Chemical Society, the American Institute of Chemical Engineers and several related organizations.

Dr. Dorr's successor, Elmer R. Ramsey, is second to the firm's founder in point of years of service. It was in 1914 that he joined The Dorr Company as a junior engineer. During the suceeding years he rose through various promotions to the post of operating vice-president in 1946. He has been a director and a member of the company's executive committee since 1935.

Mr. Ramsey was born in London, Ky., on August 7, 1888, but spent much of his early life in Denver, where he began his preliminary education for medicine and surgery. During this period he was persuaded by a friend of his family to try practical mining for a year. He became so interested in this work that he decided to make mining and metallurgy his profession. He was graduated from the Colorado School of Mines in 1912.

In 1913 he became associated with The Dorr Company, and a year later he was made junior engineer. Throughout the intervening years his devotion and loyalty to the company and its objectives proved his eminent fitness for the important position to which he has been recently appointed. He is affiliated with the A.I.M.E., the Mining and Metallurgical Society of America and several other professional organizations

National Agricultural Limestone Association Convention Program

Hotel Statler, Washington, D. C.
January 18-20

TUESDAY, JANUARY 18, 1949

Morning session, 9:30 a. m., South American Room.

Presiding Officer: President H. C. Gray, Sec.-Treas. of Standard Paving Co.

Registration.

Call to order and welcome by the President.

Presentation by Secretary of the Register of Members present in person or by proxy.

Reading of minutes of previous meeting.

Treasurer's Report—H. E. Battin, Vice-President of Callanan Road Improvement Company.

Report of Committees: Membership—L. S. Fry. Percentage Depletion—C. P. Haun. Legislative—J. M. Deely. Special—B. T. Scharbach. Finance—N. G. Farber.

Secretary's Report—R. M. Koch.

Announcement of New Committees.

Old Business.

Recess for Luncheon.

Greeting Luncheon, 12:30 p. m., Federal Room.

Presiding Officer: H. C. Gray.

Address by Charles F. Brannan, Secretary of Agriculture.

Afternoon session, 2:15 p. m., South American Room.

Presiding Officer: Director Vincent H. Shea, President of Allied Minerals, Inc.

"The Production & Marketing Administration and the Agricultural Conservation Program"—Ralph S. Trigg, Administrator to P & MA.

"The 1949 and 1950 National Agricultural Conservation Programs"—A. V. McCormack, Director of the A.C.P. Branch.

"Trends in Purchasing Liming Material Under the A.C.P."—Roland Crumpler, Chief of the Conservation Materials and Services Section.

Adjournment, 4:30 p. m.

Evening session, South American Room.

Reception for Members and Guests, 6:00 p. m.

Annual Banquet, 7:00 p. m., Federal Room.

Presiding Officer: President H. C. Gray.

Toastmaster: Vice-President J. M. Deely.

"Declining Soil Fertility, Its National and International Implications"—William A. Albrecht, Chairman of the Department of Soils, University of Mo.

"Labor Relations—Industry, Management, and the Public"—Maurice J. Tobin, Secretary of Labor.

WEDNESDAY, JANUARY 19, 1949

Morning session, 10:00 p. m., South American Room.

Presiding Officer: Director B. T. Scharbach, Vice-President of Sand & Stone, Inc.

"Moistening Bulk Lime for Spreading"—M. L. Dake, Coop. GLF Soil Building Service.

Status of Supply of Freight Cars—W. E. Callahan, Association of American Railroads.

Freight Rate Increases—Robert N. Nash, Association of American Railroads.

Luncheon, 12:30 p. m., Federal Room.

Presiding Officer: Director C. P. Haun, President of Franklin Limestone Co.

"Delivered Pricing and the Cement Decision"—H. P. Fowler, General Counsel of the Chamber of Commerce of the United States of America.

Afternoon session, 2:00 p. m., South American Room.

Presiding Officer: President H. C. Gray.

Report of Nominating Committee.

Election of Directors.

Reports of Committees.

Unfinished Business.

Adjournment.

Meeting of Board of Directors—4:00 p. m.

THURSDAY, JANUARY 20, 1949

South American Room, 10:00 a. m. to 4:00 p. m.

Because of Inaugural Ceremonies beginning early, followed by the inauguration of President Truman at the East side of the Capitol at 12:00 noon, there will be no sessions scheduled.

There will be a television set in the South American Room for the benefit of those who do not wish to attend the parade and also in case of inclement weather.

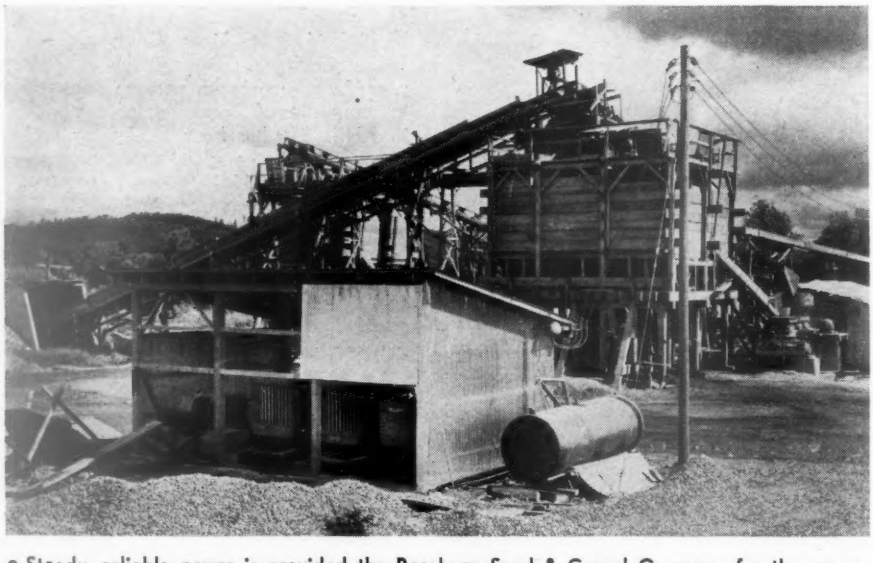
Program Outline for 33rd Annual Convention

Highway Legislation Approved By Voters in Three States

By overwhelming adoption of a full anti-diversion amendment, Massachusetts became the twenty-first state prohibiting diversion of highway revenues to other purposes, according to Charles M. Upham, engineer-director of the American Road Builders' Association.

West Virginia voters recently ratified, by a three-to-one majority, a constitutional amendment providing for the issuance of $50,000,000 in bonds to build secondary roads. The State Road Commission of West Virginia estimates that 2,500 miles of secondary roads can be improved, and 3,000 miles of new roads can be constructed over a five-year period with approval of the legislation.

Louisiana voters approved a constitutional amendment raising that part of the nine-cent gasoline tax earmarked for highway purposes from five to five and one-half cents.



• Steady, reliable power is provided the Roseburg Sand & Gravel Company for the operation of its new crusher plant on the outskirts of Roseburg, Ore., by the three Palmer generator sets shown, which are operated by two International UD-24 power units and a UD-14 power unit. Rated capacity of these three sets totals 180 kw. Power goes to 15 motors which operate three crushers (two Traylors and a Telsmith gyrosphere) and five conveyors of various lengths. Capacity of the plant is 60 cu. yds. of ¾-in. stone per hour, a size which is in big demand. Rock and sand, which is also processed and sold, are taken from the riverbed of the North Umqua River nearby. Don Metzger is president of the company.

Ruhm Phosphate & Chemical Builds Three 1000-Ton Bins

A new landmark northeast of Normal, Ill., is the 85-ft. phosphate bin recently constructed for the Ruhm Phosphate & Chemical Company of Chicago. The big structure is said to have a capacity of 1000 tons of rock phosphate.

A similar bin has been built by the company at Manteno, Ill., and a third is under construction at Latham, Ill. (The company's plant is located at Mount Pleasant, Tenn.) H. A. Komnick will supervise loading operations at Normal.

Oklahoma Highway Committee Urges Use of State Crusher

A recommendation to the Oklahoma State Legislative Council by its highways committee called for an investigation into the possibility of putting the state-owned rock crusher at Stringtown into operation. The plant, completed a number of years ago, has been standing idle.

The highways committee also asked for a report on the possibility of the state making its own cement for highway construction to beat the shortage.

National Crushed Stone Assn. Convention Program

Hotel New Yorker, New York, N. Y.

February 7-9

MONDAY, FEBRUARY 7

9:00—Registration.

Morning Session

9:30—"America and Sons, Unlimited"—Moving Picture through the courtesy of the United States Chamber of Commerce, Washington, D. C.

10:00—Call to Order and Greetings from the President—W. S. Weston, Jr.

10:15—Report on Business Conditions During 1948 and the Outlook for 1949—A Summary of Reports by Regional Vice Presidents Presented by the President—W. S. Weston, Jr.

10:30—Announcement of Convention Committees:

Auditing
By-Laws
Nominating
Resolutions

10:45—Report of Engineering Director—A. T. Goldbeck.

11:05—Report of Field Engineer—J. E. Gray.

11:25—Report of Administrative Director—J. R. Boyd.

11:45—Address of Particular Interest to Salesmen—Gene Flack, National President, National Sales Executives Association, Director Advertising and Sales, Sunshine Biscuit Company, New York, N. Y.

12:15—Adjournment.

Greeting Luncheon

"Successful Living"—Dr. Norman Vincent Peale, Minister, Marble Collegiate Church, New York, N. Y.

Afternoon Session

2:30—Presentation of National Crushed Stone Association Safety Awards—F. J. Buffington, Chairman, Cement and Quarry Section, National Safety Council, and Safety Engineer, New York Trap Rock Corp., New York, New York.

3:00—Discussion of Operating Problems.

5:30—Adjournment.

TUESDAY, FEBRUARY 8

Morning Session

9:15—"Highway USA"—Moving Picture through courtesy of Barber-Greene Co., Aurora, Ill.

Annual Business Meeting

10:00—Report of Auditing Committee.

10:05—Report of Resolutions Committee.

10:20—Report of By-Laws Committee.

10:30—Report of Nominating Committee and Election of Officers and Members of the Board of Directors.

10:50—Greeting of President-Elect.

General

11:00—"Some Factors Which Affect the Performance of Asphaltic Concrete Pavements"—E. F. Kelley, Chief, Division of Physical Research, Public Roads Administration, Federal Works Agency, Washington, D. C.

11:30—"The Meaning of the Soviet-American Crisis"—Leland Stowe, Veteran Foreign Correspondent who recently toured Eastern Europe and Pulitzer Prize-Winning Journalist, New York, N. Y.

12:00—Adjournment.

12:30—Manufacturers' Division Annual Business Meeting (Luncheon).

Afternoon Session

2:30—"Significance of Recent National Elections—A Washington Preview of What Lies Ahead"—James W. Douthat, Executive Assistant, National Association of Manufacturers, Washington, D. C.

3:00—"Special Uses for Crushed Stone"—A. T. Goldbeck, Engineering Director, National Crushed Stone Association, Washington, D. C.

3:30—"The U. S. Corps of Engineers' Approach to More Durable Concrete"—Jesse R. Gilbert, Concrete Division, Corps of Engineers, U. S. Department of Defense, Gravelly Point, Va.

4:00—Adjournment.

Evening

8:00—Informal Meeting for Those Interested in Accident Prevention.

WEDNESDAY, FEBRUARY 9

Morning Session

9:30—Moving Picture.

10:00—"Problems in Railroad Roadbed and Ballast Maintenance"—H. W. Legro, Chairman, Committee I, Roadway and Ballast, American Railway Engineering Association, Boston and Maine Railroad, Boston, Mass.

10:30—"Federal Regulation of Pricing Methods and Policies"—John C. Gall, Attorney-at-Law, Washington, D. C.

11:00—Discussion.

11:30—"The Idlewild Airport"—Austin J. Tobin, Executive Director, Port of New York Authority, New York, N. Y.

12:00—Adjournment.

General Luncheon

"World Government"—Cord Meyer, Jr., President, United World Federalists, Inc., New York, N. Y.

Afternoon Session

2:30—"The Highway Challenge—And You"—B. D. Tallamy, Superintendent of Public Works, State of New York, Albany, N. Y.

3:00—"Vibrations from Short Delay Blasting"—Dr. L. Don Leet, Seismologist, Harvard University, Cambridge, Mass.

3:30—Discussion.

3:45—"Vibration Effect of Burden and Spacing with Short Delay Firing"—Jules E. Jenkins, Vibration Measurement Engineers, Chicago, Illinois.

4:15—Discussion.

4:30—Adjournment.

Evening

6:00—Reception

7:00—Annual Banquet

Banquet Address: "Foolosophy, Facts and Fun"—Dr. John L. Davis, Humorist, Philosopher, Orator, New York, N. Y.

$70,000,000 Mark Forecast For '48 National Gypsum Sales

Totaling up the figures for National Gypsum Company's sales and earnings for the year, officials estimate that sales, originally expected to be about $65,000,000, will top $70,000,000. Net income in 1948 is expected to exceed $3.50 a common share, whereas in 1938 the income was 94 cents per share, on about half the number of common shares now outstanding, on sales of $13,000,000.

Trebling of sales and doubling of productive capacity are results, say officials, of the firms $30,000,000 expansion program, recently completed.

Wage Increases for Employees In Two Pennsylvania Plants

Employees of the Wyoming Sand Co. and the Falls Sand and Gravel Co. at Wilkes-Barre, Pa., have been given a wage increase of 10 cents an hour under the terms of a new contract signed with the C.I.O. union. The agreement, retroactive to July 15, covers 40 employees of the Wyoming and nine Falls Sand and Gravel workers.

Other provisions of the contract with Wyoming are one week's pay while awaiting compensation for injuries, two weeks' paid sick leave, four days' pay during a death in the family of workers, two and a half weeks' vacation for employees with two or more years' service and 50 hours' vacation for a year's service, and payment of wages lost while on jury duty.

The wage increase brings the hourly rate for employees to $1.35 for Wyoming personnel and $1.25 for Falls employees.

"Nuisance? Nonsense!" Says Guiberson to Dustophobes

At a fashionable California resort town the current Guiberson *versus* Palm Springs feud is still on. The citizens, disturbed over reports that S. A. Guiberson Jr. proposed to build a cement plant in their community, instituted a suit to restrain him from such action. A recently enacted Riverside County ordinance banned the project.

Mr. Guiberson, however, according to latest reports, is planning to begin construction of a $10,000,000 plant. He holds that modern equipment to be installed for dust elimination will be entirely adequate to deal with the dust nuisance which residents and business interests say will reduce the value of property and cause discomfort. Federal Judge Jacob Weinberger is said to have refused to dismiss Mr. Guiberson's suit against Riverside County to prevent the enforcement of the prohibitive ordinance. Reports on the next round of the battle will follow.

Fire Causes Heavy Damage At Dolese Brothers Plant

A spectacular fire recently destroyed the million-dollar crushed stone plant of Dolese Brothers at Richards Spur, Okla., 5 miles north of Fort Sill. Plans for rebuilding have not as yet been announced.

W. S. Knox, production superintendent at Richards Spur, stated that, since the firm has several other operations in the area, there will be no shortage of crushed stone.

An announcement from the Sand-Lime Brick Association states that the organization's 43rd annual convention will be held January 27-29 at the Hotel Statler in Detroit. Under consideration is a suggestion for a new name, the Autoclave Building Products Association.

National Sand and Gravel Assn. National Ready Mixed Concrete Assn. Convention Programs

Hotel New Yorker, New York, N. Y. February 14-17

MONDAY, FEBRUARY 14

The NSGA Board will meet Monday morning; the NRMCA Board will meet Monday afternoon. The two Boards will have a joint luncheon on that day.

The NSGA Taxation Committee, of which J. Rutledge Hill is Chairman, will meet Monday afternoon at 2:30 p. m.

On Monday evening, commencing at 8 p. m., there will be an informal NSGA and NRMCA open forum on problems of labor relations in the two industries. That open forum will be conducted by Mr. Horsky, Mr. Tobin and Mr. Ahearn. The Taft-Hartley Act will be discussed; execution of labor agreements in the two industries will be reviewed; and the computation of overtime pay under the Bay Ridge Case will be discussed, including presentation of Examples of Computation by Mr. Tobin, through the medium of slides.

State and District Association Officials in both industries will hold a luncheon beginning at 12:30 p. m.

TUESDAY, FEBRUARY 15

NSGA and NRMCA will formally open their conventions on this morning. The two Presidents will make their respective addresses; the Director of Engineering and the Executive Secretary will make consolidated reports to the two industries. NSGA and NRMCA safety trophies will be awarded. Robert Mitchell of Los Angeles will talk about the safety program of Consolidated Rock Products Company, with its emphasis upon public relations and good employee relations.

NSGA will hold a separate session Tuesday afternoon; NRMCA will have no session. There will be a discussion on the use of sand and gravel in bituminous construction, followed by an open forum on operating problems in the sand and gravel industry.

There will be a separate and simultaneous session of the cost accountants of the industries.

The Manufacturers Division of the NSGA will hold its annual meeting from 5 p. m. to 6 p. m.

Stanton Walker, assisted by Fred Bartel and Delmar Bloem, will have an informal session commencing at 8 p. m., devoted principally to the Design of Concrete Mixtures, including adjustments for entrained air. This session will be a joint NSGA and NRMCA affair.

WEDNESDAY, FEBRUARY 16

NRMCA will hold a meeting; NSGA will be inactive. This session will open with a paper on lightweight concrete and the discussion, after the principal speaker has finished, will be led by Eugene Sundt of the Albuquerque Gravel Products Company. Mr. Walker will talk on sampling and testing ready mixed concrete and will describe the work of an Association Committee resulting in recommended practices for such procedures. Delmar Bloem, assistant to Mr. Walker, will report on a NRMCA laboratory project. An open forum on operating problems in the ready mixed concrete industry will follow.

NSGA and NRMCA will meet in a joint session Wednesday afternoon. There will be four speakers: G. Donald Kennedy, Vice-President, Automotive Safety Foundation, "Federal Highway Legislation"; B. D. Tallamy, Commissioner, New York Department of Public Works, "The New York State Highway Program"; Thomas S. Holden, President, F. W. Dodge Corporation, "Construction Industry Prospects for 1949"; and General Raymond A. Wheeler, Chief, Corps of Engineers, U. S. Department of the Army, who will discuss the construction program of the Corps of Engineers.

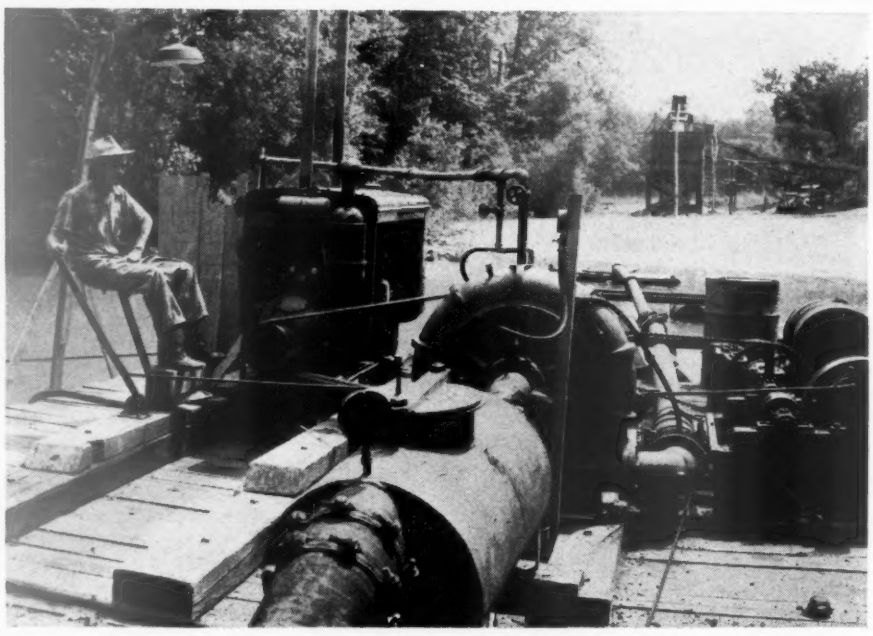
There will be an open meeting Wednesday morning of the NSGA Committee on Zoning, Land Rehabilitation and Stream Pollution, of which W. E. Hole is Chairman.

THURSDAY, FEBRUARY 17

J. R. Gilbert, of the Corps of Engineers, will discuss "War Department Specifications for Aggregates." Mr. Hill will submit a progress report for his Committee on Taxation; Fred Bartel, Mr. Walker's assistant, will report on a current NSGA laboratory project, and there will be election of officers and adjournment for the NSGA convention. This first session on Thursday, February 17, will be a separate and concluding NSGA session.

The NSGA and NRMCA will have a joint luncheon this day. The speaker will be M. W. Clement, President of the Pennsylvania Railroad Company. Robert Mitchell will be Toastmaster for this occasion.

On Thursday afternoon NRMCA will hold its closing session. W. D. M. Allan, Director of Promotion, Portland Cement Association will discuss "Markets for Ready Mixed Concrete in 1949"; General Counsel Charles A. Horsky, will discuss the basing point and delivered pricing problems raised by the decision of the United States Supreme Court in the Cement Case; Mr. V. P. Ahearn will make a report on "Cement Supply in 1949." There will be an open forum on Merchandising Problems, presided over by Robert Collins of Philadelphia. The convention will close with the election of officers.



• A special screen chamber (center foreground) on the intake hose and a dependable diesel supplying plenty of pumping power, mean increased production for this installation of the Superior Sand and Gravel Company, Hatfield, Ind. It pumps 25 tons of gravel per hour. An International UD-16, 100-horsepower diesel engine drives the Hetherington & Berner 6-in. gravel pump by V-belts from the engine take-off shaft to a 30-in. pulley on the pump. E. M. Osmann, owner, reports that the UD-16 saves $20 in fuel costs every 15 hours.

Canadian Lime Production Reaches New High in 1947

The annual report of the lime industry in Canada, 1947 issue, published by the Ministry of Trade and Commerce, revealed that a new production high had been reached in 1947. A total of 477,413 tons, valued at $8,542,507 (twice as much at the score of 1938), was recorded. The new figures represented a 16.2 percent increase in tonnage and 20.7 percent in value over those of 1946.

Portal-to-Portal Pay Suit Against Monolith Dismissed

Federal Judge T. Blake Kennedy at Cheyenne, Wyo., has dimissed the $156,000 portal-to-portal pay suit brought by employees of the Monolith Portland Midwest Cement Co. at Laramie, Wyo.

In dismissing the case, Judge Kennedy cited a recent United States Supreme court opinion which upheld the constitutionality of a 1947 law passed by the Congress outlawing such pay claims. He further explained dismissal of the suit came about as a result of a hearing set the day before on a motion for dismissal of the case.

WASHINGTON NEWS LETTER

another P AND Q exclusive

By S. HERBERT UNTERBERGER

GUESSING what the new Congress is likely to do is the big activity in Washington these days. Of the many legislative matters before that Congress which are of major concern to businessmen the question of what is going to happen to taxes is certainly among the most important. Here are the considerations which are likely to be involved in the settlement of the tax question.

Tax Problem Background In considering what should be done, the Administration and the Congress will no doubt keep three things very much in mind. First, the action of the 80th Congress which reduced personal income taxes. This was done despite Presidential objections that no tax reduction was appropriate at that time and if any tax reduction was to be made it should be concentrated on the lower income groups. The recent elections are, of course, widely interpreted as a repudiation of the actions of that Congress. Second, while even the reduced tax rates will be sufficient to just about balance the budget through the fiscal year ending on June 30, 1949, without retiring any debt, they will probably not be sufficient to balance the budget for the following fiscal year. This might have occurred under any administration because of the high foreign aid and military expenditures and because a relatively small decline in our high level of individual incomes will result in a much larger decline in tax revenue. It is almost certain to occur if we engage in any substantial program to re-arm the Western European countries and if the expensive domestic programs promised by President Truman in his campaign come to pass. An extensive public housing program, higher farm price supports, conservation, aid to education, public power and irrigation all cost money which can come only from higher taxes or from borrowing. Third, running the government at a deficit during a period of unparalleled prosperity is not only bad economics but also bad politics. It would increase the amount of money in circulation, thereby adding to the already serious inflationary pressures when what ought to be done to reduce those pressures is to have a surplus and to pay off some debt. If times got bad, borrowing for public works or other programs might be more difficult. And, an administration is always subject to serious criticisms if it can operate only at a loss.

The Alternatives The Federal Government is in a position, therefore, where it can operate at a deficit, reduce its expenditures, or increase taxes. The first alternative is distasteful and probably unwise. The second is unlikely. Most of the Government's expenses, such as the interest on the debt and the maintenance of essential services, cannot be reduced. To reduce others would mean giving up such programs as the Marshall Plan, an adequate armed force, etc. To be sure, some of the Government's operations could be run more efficiently but even here the most optimistic estimates of what can be saved—made by the Hoover Commission which is studying this problem—do not indicate that enough can be saved, nor can it be done soon enough, to avoid this budget problem. The final alternative, of course, is to increase taxes. But which taxes?

Which Taxes To Raise Individual income taxes are the largest revenue producers. If they were returned to the pre-1948 level, that would probably solve the problem. The President and Congress will have to consider whether to risk this unpopular measure. Just raising taxes on the higher incomes would probably not provide sufficient revenue. To raise the taxes of the medium- and low-income groups at this time when the pinch of rising living costs is really beginning to hurt would require political bravery which may be considered above and beyond the call of duty.

Excise taxes might be raised. If they are limited to so-called luxuries they are unlikely to raise much revenue. If they get down to basic living requirements, they will be open to more criticism than an increased income tax. Furthermore, the businesses affected will increase their already loud protests that these taxes cause them an undue hardship.

Taxes on corporation earnings are next in line. This is an especially attractive prospect because corporation profits have been rising so rapidly. In June, 1948, they were running at the record rate of 20.4 billion dollars a year after taxes. Two kinds of corporation taxes are being suggested: a tax on excess profit and an increase in the corporation income tax.

Excess profit taxes were levied during the war but died shortly thereafter. An attempt to reintroduce them in 1948 was quickly tabled in Congress. That proposal for a 75 percent tax on all profits over $50,000, plus 135 percent of the wartime excess profits tax credit may be revived. The wartime credit was roughly 95 percent of the average yearly net income in the years 1936 through 1939. Other proposals are also in the wind. Taxing excess profits is generally popular politically. Its principal disadvantage is that it is enormously complex and difficult to administer. Using a 1936-39 base as a measure of normal profit is becoming increasingly unrealistic for most corporations. For many, their situation has changed significantly. They are making different products or the same products by different methods. Their financial structure may have changed. Many industries were not even in existence then — for example, television. A great many adjustments would have to be made to take care of these special situations. There would be endless appeals and law suits. There are still over 100,000 cases to be disposed of under the wartime law.

An increase in the corporate income tax is the other possibility. The present rate is graduated up to 38 percent on incomes of $50,000. All corporations with net earnings above $50,000 pay that same rate. This is a reduction from a wartime rate of 40 percent. There could be a return to the wartime rate or even higher. Another possibility is for a further graduated tax on corporations so that the higher the earnings, the greater the proportion that is taxed away. This is defended on the ground that it would protect small corporations while at the same time achieving almost the same result as an excess profit. It is attacked on the ground that it is unfair, since the amount of the tax would depend not so much on a corporation's profitability but rather on its size.

(*Continued on page* 93)

Production of Cement Exceeds 1947 Record Volume

By WALTER E. TRAUFFER

IN 1948 both the production and shipments of portland cement in the United States soared to new all-time high levels. Complete official figures are as yet available only through October, but conservative estimates for November and December indicate a total production of about 204,000,000 bbls., 10 percent over the 1947 all-time high of 184,658,000 bbls. Shipments of about 203,000,000 bbls. were 9 percent over the 1947 record volume of 185,491,000 bbls. Left even farther behind were the previous records set in the war boom year of 1942 and the earlier boom year of 1928.

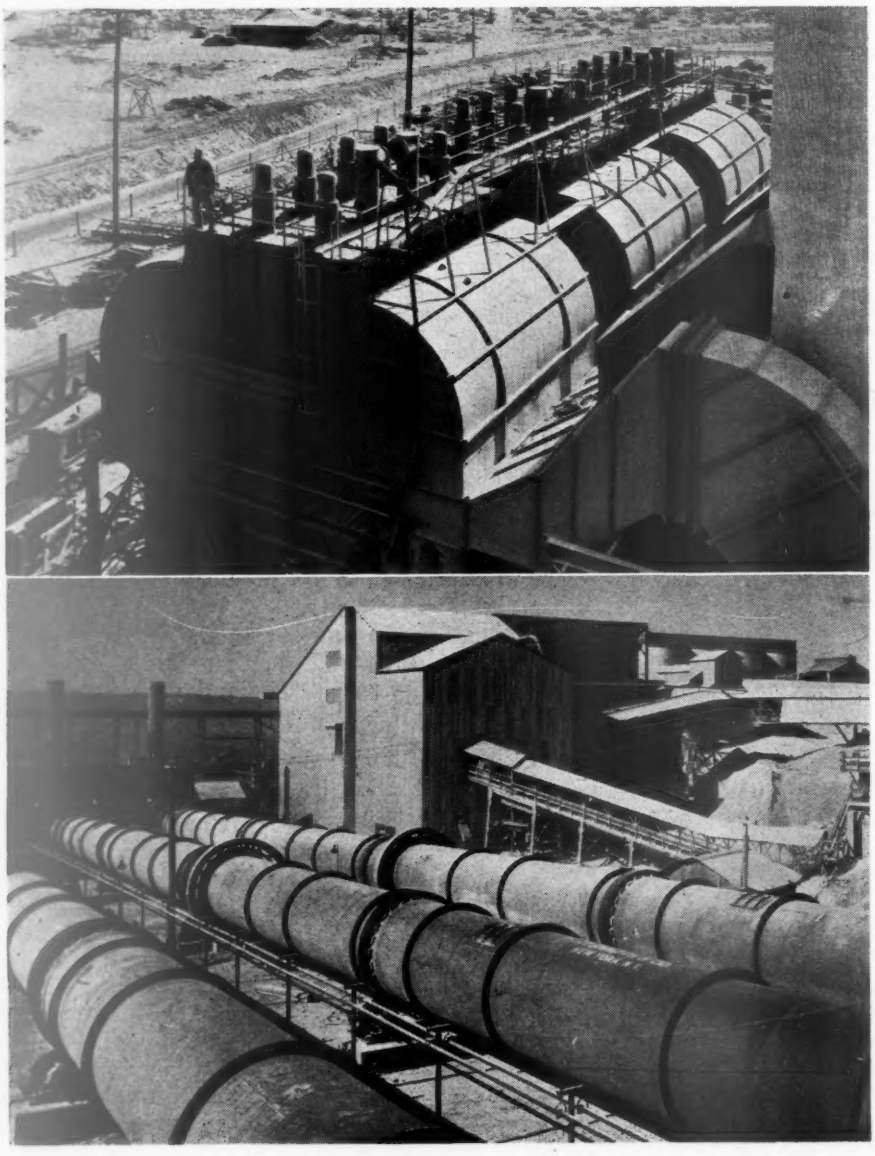
For the first time since 1943 production exceeded shipments, with the result that cement stocks on hand at the mills at the end of October, the normal low point of the year, were 6,086,000 bbls., 7 percent above the October, 1947, figure of 5,668,000 bbls., which was the lowest in the last 20 years. It is interesting to note that during the peak months the industry was producing at nearly its rated capacity.

This production record was set in spite of numerous handicaps, most of which were, however, less severe than in 1947. Fuel shortages were less severe on the whole. In coal-burning areas there was much less interruption due to strikes, although a dearth of coal cars still existed. Shortages of fuel oil and gas, however, continued to handicap producers in California and the Southwest. The scarcity of cars for cement shipments was lessened somewhat, due in part to the steady stream of new cars being built and also to more efficient use of those available.

Labor difficulties within the cement industry were less of a handicap than in 1947. There were no general strikes of long duration, and difficulties at individual plants and localities were quickly settled, in some cases by the granting of moderate pay increases; in others the Taft-Hartley law is given credit. The shortages of some types of equipment and supplies continued on a reduced scale, and only a few items, particularly heavy equipment, required more than a few months' delivery time.

No official information is available on the net mill value of the portland cement produced in 1948 but it is certain that another all-time record was set, the total value probably exceeding $400,000,000. The record 1947 output set an all-time record of $351,477,000, eclipsing the $288,451,136 total of 1946, the $286,136,255 total of 1925, and the 1942 figure of $281,720,953. The 1947 mill value of $1.89 per bbl. was the highest since 1923; and the 1948 value, estimated to be over $2.10 per bbl., was the highest since the turn of the century.

There were, as in 1947, shortages of cement in some areas, with resultant black or gray market operations outside the industry. Careful policing and allocation by the industry, however, kept this condition from being too serious. Users of cement seem to be agreed that the Supreme Court's basing point decision intensified shortages of cement in areas remote from cement plants, at the same time relieving this condition near such plants. Users complain that the new pricing system has created one-mill monopolies in areas formerly served by two or more plants, with the result that a favored user gets as much cement as he needs at a low price from the local mill, while his competitor gets a limited amount at a much higher price from a distant mill. This condition is reported to have given some



• Improvements at the Oro Grande, California plant of the Riverside Cement Co. The top view shows three dust collectors from a vantage point on top of the kiln-feed silo. The bottom view shows the three new 350-ft. kilns with the crusher in the background.

users a price advantage of as high as $0.60 per bbl. over competitors in the same city.

The cost of production continued to climb in 1948, the apparent average increase, based on the results of a questionnaire sent to the industry, being about 12 percent. This compared with an average increase of only about 5 percent in wages paid per hour. With the net mill price per bbl. realized in 1948 about 10 percent over 1947 this seems to indicate that any increases in profits were due almost entirely to increased production.

FUTURE PROSPECTS

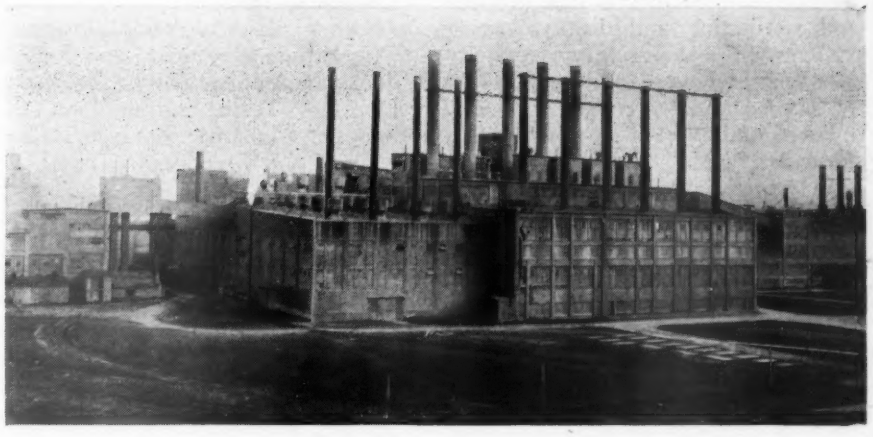
The prospects for the cement industry in 1949, from indications now available, are definitely good, but how good is anyone's guess. The very worst that can reasonably be expected is a considerably better than average year, but it seems unlikely that any new records will be set. The construction picture indicates perhaps a 5 percent loss in actual volume from 1948 and this makes it apparent that the cement industry should about hold its own in shipments.

Barring unforeseen developments the industry should be able to produce more cement in 1949, if necessary, because of the considerable added capacity from new plants and plant expansions. Two large new plants went into full operation in 1948 and a third smaller plant is just beginning to produce. In 1949 at least one new plant will start up and two others may get under the wire. The plans for several other new plants may crystallize during the year. Plant expansion in 1948 added considerably to the capacity of the industry; the huge expansion program at one plant alone increased the capacity of the industry by more than the output of an average new plant. Many other important programs now under way will be completed in 1949.

Fewer major plant expansion programs are now in prospect than at the same time last year, but this is known to be due, in part at least, to uncertainty regarding the permanence of the present plant-pricing system. When this problem is definitely settled one way or the other it is expected that many companies will announce plans now held in abeyance.

PLANT DEVELOPMENTS

Ideal The Ideal Cement Company late in 1948 virtually completed its vast 3-year expansion and improvement program, running well into eight figures, when it put in operation its "twin" new plants at Portland, Colorado, and Devil's Slide, Utah. These two new 4,000-bbl.-per-day plants, plus the important improvements made to six of its existing plants nearly doubled the output of the Ideal chain of 11 cement plants, making it the fourth-largest producer of cement in the United States. These plants are located in Colorado, Utah, Montana, Nebraska, Arkansas, Texas, Oklahoma and Alabama. A feature article in this issue describes the two new plants in detail and also gives an up-to-date resume of the improvements made at other plants.



• General view of the Huron Portland Cement Company's plant at Alpena, Mich., now believed to be the world's largest.

The two completely new plants are closed-circuit wet grinding operations involving the latest in methods and equipment. They are basically identical in design both as to layout and equipment, but because of differences in topography, their layouts are exactly opposite. Their equipment is identical except for the differences made necessary by local conditions, the nature of raw material, etc. For example, a roll crusher is used at Portland and a gyratory at Devil's Slide. The raw mills are longer at Devil's Slide because the stone is harder to grind; the slurry thickeners are larger at Portland because the stone has slower settling characteristics.

The expansion of other plants included the addition of kilns, coolers, mills, etc., at Houston, Texas, and Okay, Arkansas, and kilns, grinding mills or other units at the other plants affected. A major improvement in the raw-material-blending method at Boettcher, Colorado, is under way and direct-firing coal mills may be installed. At Trident, Montana, where the Ideal Cement Co. installed a compeb mill and a new coal mill in 1947 and a kiln in 1948, further expansion is planned. It has been announced that a new kiln, a rock drier, four new ball mills and two 14-ft. Sturtevant separators will be installed. This program will about double the capacity of the plant.

One of the most important developments of the year, from a business standpoint, was the consolidation with the parent Ideal Cement Co. of the Colorado Portland Cement Co. and the following subsidiaries: Arkansas Portland Cement Co., Gulf Portland Cement Co., Nebraska Cement Co., Oklahoma Portland Cement Co., Union Portland Cement Co., Three Forks Portland Cement Co., and United States Portland Cement Co.

Huron The Huron Portland Cement Company's major expansion program at Alpena, Michigan, was substantially completed in the closing months of 1948. With the additional production of four new 10- by 153½-ft. rotary kilns, the Alpena mill is now believed to be the world's largest. There are eight 8- by 110-ft. kilns in an older section of the plant, and ten of the larger units in what the company designates as its No. 2 mill. Allis-Chalmers and the Vulcan Iron Works each supplied two of the new units.

The new kilns are at present producing at the rate of 52 bbls. per hour per kiln, and with improved co-ordination of feed it is expected to jump the output to 60 bbls. before long. Each of the new units has a 6- by 20-ft. Fuller grate cooler, and the six older kilns in No. 2 mill are being similarly equipped this winter. Raw-grinding capacity has been increased by about 25 percent, largely by improved methods of feeding which have resulted in much larger circulating loads. All the mills in the plant are being equipped with

Hardinge Feedometers and individual ventilating and dust collecting systems. Finish-grinding capacity has been increased to around 24,000 bbls. of standard cement per day by the installation of six new Bradley Hercules mills. Five new 14-ft. Sturtevant air separators have also been installed in this section of the mill.

Riverside The Riverside Cement Co. late in 1948 completed a 2-year major improvement program at its Oro Grande, Calif., plant, which increased its old 1,000,000-bbl. capacity to 3,500,000 bbls. This work began in the quarry, where two new Marion 2½-cu. yd. electric shovels and four Autocar-Fruehauf 40-ton double-body, semi-trailer trucks were added. Plant equipment included a 48- by 60-in. Allis-Chalmers jaw crusher, three Symons cone crushers, three Smidth 9½- by 18⅔-ft. air-swept raw ball mills, three Fuller inclined grate clinker coolers, three 150-ft. Rust concrete stacks, Western Precipitation Corp. C.M.P. dust collectors, etc. The three 10- by 350-ft. Smidth kilns are said to be the largest ever installed in a dry-process plant.

Lone Star The Lone Star Cement Corp. has near completion the $1,000,000 improvement program at its New Orleans, La., plant which will increase its capacity 50 percent to about 2,200,000 bbls. annually. Already installed are a 385-ft. kiln, dust collectors, additional grinding equipment, a new kiln stack, etc.

Other plants recently improved, especially in the storage and packing departments, are those at Dallas and Houston, Texas; Birmingham and Spocari, Alabama; Bonner Springs, Kansas, and Greencastle, Indiana.

It was recently announced that further work is to be done at the Dallas plant. A 10- by 275-ft. kiln is to be added early in 1949, and work is under way on enlargement of the quarry and on a new slurry basin.

Olympic The Olympic Portland Cement Co. completed a major improvement program at Bellingham, Wash., in February, 1948, which left its 3,000-bbl. capacity unchanged. There were, however, considerable improvements in fuel consumption, clinker quality, economy, etc. A new 11- by 400-ft. Smidth rotary kiln replaced three smaller old kilns which were permanently taken out of production. New coolers, dust collectors and additional raw-grinding equipment were included in the program, and the finish mill is slated for rehabilitation some time in the future.

The kiln is equipped with Unax coolers, and stack dust is collected by a Buell collector which can handle 90,000 c.f.m. of gases at 500 deg. F. A Smidth 8½- by 12-ft. ball mill and a Smidth 8- by 28-ft. tube mill were installed in the modernized raw-grinding department.

Diamond The annual capacity of the Diamond Portland Cement Co., Middlebranch, Ohio, was increased approximately 50 percent by the installation of a third kiln which went into operation in June of 1948. The new Traylor kiln measures 10 by 150 ft. and is equipped with a Type "S" Vanderwerp recuperator. Two banks of Buell dust collectors, six cyclones in each bank, eliminate the dust generated by the new kiln.

No changes were made in the rest of the plant, as both the raw-grinding and crushing capacities were adequate to supply three kilns. Future improvements contemplated are improved instrumentation and more dust collectors.

• The discharge end of a new kiln installed at the Diamond Portland Cement Co., Middlebranch, O. Production at this plant has been increased an estimated 50 percent.

Carolina Giant We have been informed that the new plant of the Carolina Giant Cement Co. at Harleyville, S. C., began operation in December, 1948. This new 800,000-bbl. operation is the first cement plant in the Carolinas and is expected to help alleviate shortages in that area. It was rebuilt from the original Ancor aluminum plant which the Giant Portland Cement Co. took over early in 1947.

Louisville The Louisville Cement Co. in 1948 completed the 3-year, $1,500,000 improvement program at its Speed, Ind., plant. New rock storage silos, a grinding department and dust collectors were added. Earlier installations included two waste heat boilers, Smidth coolers, Babcock & Wilcox direct-firing coal mills, etc.

Tex-Mex Construction was resumed during 1948 on the new $6,000,000 plant of the Tex-Mex Cement Co. at Corpus Christi, Texas. This 4,000-bbl. wet-process plant will have two 9½- by 300-ft. kilns and power will be supplied by a 6,000-hp. diesel generating plant. The Macdonald Engineering Co. has the contract for the construction of the complete plant.

Alpha The Alpha Portland Cement Co., is reported to have completed a $500,000 modernization program at its plant near St. Louis, Mo.

Medusa An important part of the multi-million dollar improvement program of the Medusa Portland Cement Co. was the completion late in the year of the crushing and raw-grinding departments at its Dixon, Ill., plant. This was the first installation of the new type Babcock & Wilcox Type B, Size

366, Class 101M pulverizer. Each of the two raw-grinding mills during an early test actually averaged 38.5 t.p.h. grinding to 94.5 percent through 200-mesh, or about 42.5 tons at 92 percent through 100-mesh. They will handle material of up to 5 percent moisture content. Each mill is connected to a 16-ft. Sturtevant separator and a Norblo dust collector. Drying is done in the circuit.

The new mill department is on one side of the new 77- by 340-ft. raw material storage building. On the opposite side of this is the new crusher building. Stone hauled in by trucks is discharged on a 60-in. Allis-Chalmers apron feeder ahead of the 48- by 60-in. Traylor jaw crusher, both of them relocated. Dried clay and shale are added ahead of the crusher. Another apron feeder and an elevator take the stone to a new Pennsylvania Impactor in closed circuit with a vibrating screen. An 8-ton P&H overhead crane feeds the materials to and from storage and to the mill feed bins.

The new kiln and other equipment at the York, Pennsylvania, plant is reported to be in operation. Twenty-four new silos and a packhouse are being designed and built by the Macdonald Engineering Co., for the Wampum, Pennsylvania, plant.

General The General Cement Co., which was formed in 1947 from three companies—the Trinity Portland Cement Co., the Signal Mountain Portland Cement Co., and the Florida Portland Cement Co.—has nearly completed a 2-year, 4-million dollar expansion and improvement program. A 12- by 426-ft. kiln was installed at the Fort Worth, Texas, plant late in 1947, and a similar kiln at Tampa, Florida, went into operation early in 1948. Production at each plant was increased about 1,250,000 bbls. annually.

Lehigh The big news about the Lehigh Portland Cement Co., is, of course, the announcement made in mid-summer of the purchase of 9,500 acres of coquina shell property near Flagler Beach, Florida, and of plans to build a new plant there.

At the Metaline Falls, Washington, plant a $1,000,000 expansion program is well under way which will double the present capacity of 2,000 bbls. daily. Involved is a new 10- by 350-ft. Smidth rotary kiln and the expansion of the quarry, grinding, coal preparation, storage and other departments.

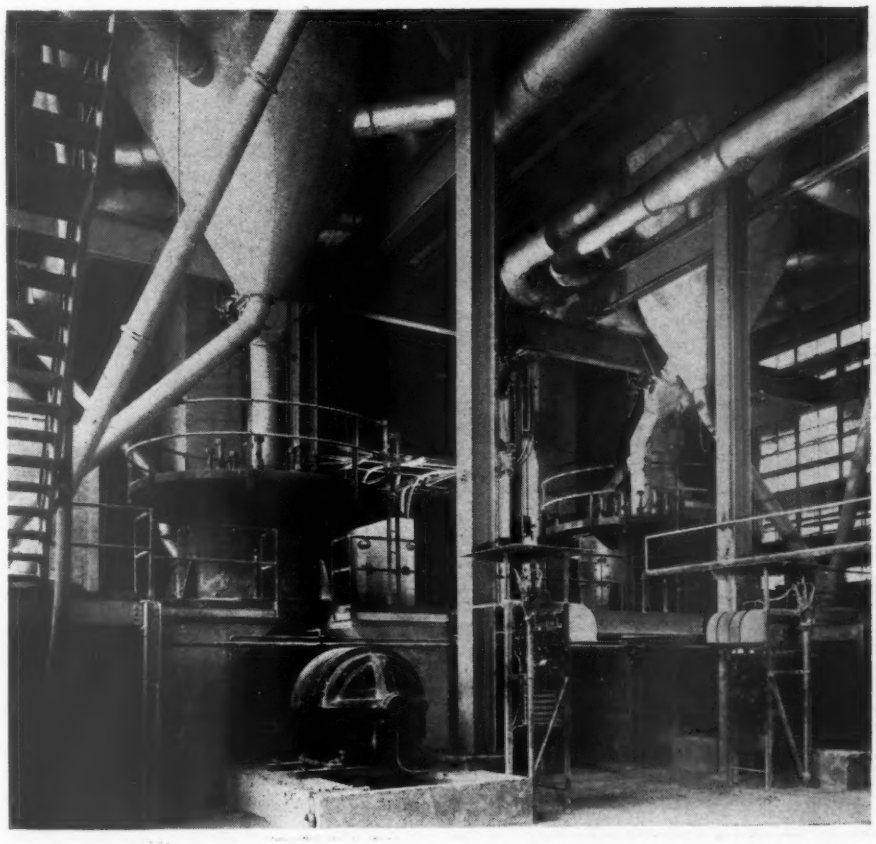
The Lehigh Portland Cement Co. completed many improvements during 1948 at others of its 13 plants throughout the country. Outstanding perhaps was the conversion of most of its quarries from rail to truck haulage. Other improvements included the following: substitution of motors for steam engine drives, and conversion from 40- to 60-cycle power at Mitchell, Indiana; two unit coal mills and the replacement of five small diesel-d.c. generator sets with a large Nordberg diesel-a.c. generator set at Iola, Kansas; the installation of a Koppers-Elex electrical precipitator for stack dust, and extension of storage and handling facilities at Sandt's Eddy, Pennsylvania; a new packhouse at Union Bridge, Maryland; an 8½- by 30-ft. compeb mill at Fogesville, Pennsylvania; Cottrell electrical precipitators and chain systems at Buffalo, New York.

Universal-Atlas The Universal-Atlas Cement Co. made many minor changes and additions at its various plants during the year. Probably the most important of these was the installation at its model Northampton, Pennsylvania, plant of two Cottrell precipitators—one for the three 10½- by 250-ft. gray cement kilns and the other for the white cement kiln. Recently an air-gravity flow conveyor system was installed to handle the collected dust.

At this same plant a truck haulage system replaced the old railway haulage system. Five Mack trucks, each with an Easton 20-ton semi-trailer, haul the rock from the quarry to the primary crusher.

A Babcock & Wilcox direct-firing coal mill was installed at the Independence, Kansas, plant. Natural gas is normally used for fuel but sometimes, especially in winter, is in short supply. The new coal mill insures against shutdowns. The installation is unique in that this mill is so connected up that any desired combination of kilns can be fired from it. A new concrete stack was also erected.

Other improvements made include, new mechanical dust collectors in the raw material drying and grinding department at Duluth, Minnesota; mechanical collectors for the kilns, coolers and dryers at Waco, Texas; a shale and sandstone crusher and equipment for the burning of natural gas at Leeds, Alabama. At the Watonga, Oklahoma, gypsum quarry a new crushing, screening, storage and loading plant was built.



• View of the two new ball-bearing type raw grinding mills recently installed at the Dixon, Ill. plant of the Medusa Portland Cement Co. This was the first installation of this type of pulverizer.

The Universal-Atlas Cement Co. has plans under way for substantial modernization of several departments of its plants at Osborn, Ohio, and Independence, Kansas. Electrical kiln dust collectors and a new concrete stack are being installed at Hudson, New York, for completion in 1949. At the Clarence Center, New York, gypsum mine new crushing, screening, storage and loading facilities are being installed and the mine head frame is being replaced with a modern structure.

Dewey The Dewey Portland Cement Co. had nearly completed an extensive program of modernization at its Davenport, Iowa, plant early in 1948 when it announced further important work which would considerably increase the capacity of the plant. The original program included new quarry shovels, a packhouse, kiln ends, Allis-Chalmers air-quenching clinker coolers, remodeling of the crushing and screening department, extension of the river dock and materials storage, etc. A new kiln and its related equipment is now being installed for operation early in 1949.

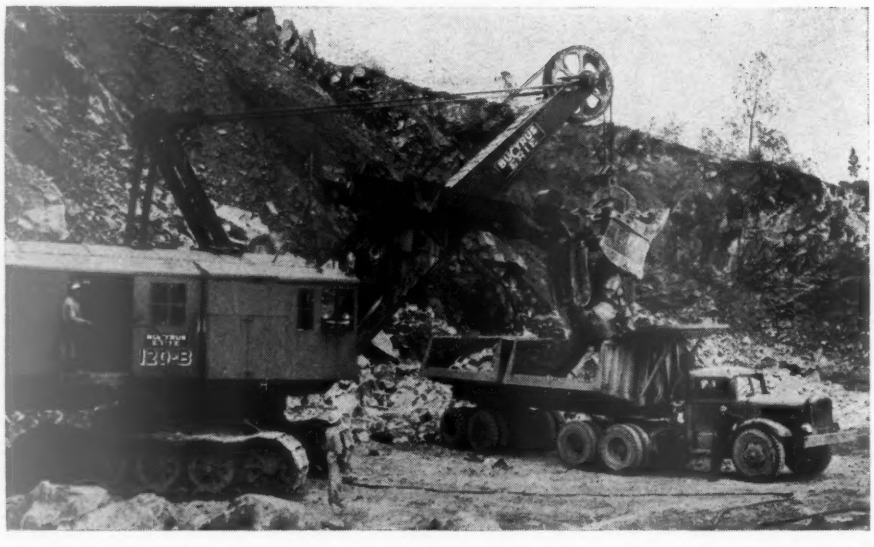
North American The North American Cement Corp. is reported to have substantially completed its extensive program at the Alsen and Howes Cave, New York, and Security, Maryland, plants.

Southwestern The Southwestern Portland Cement Co. has near completion the improvement program at El Paso, Texas, which included major changes in the rock transportation and raw-grinding departments. Locomotives and cars were replaced by trucks, and four old compartment mills are being replaced by 8- by 10-ft. Allis-Chalmers ball mills in closed circuit with 14-ft. Sturtevant separators. A third Fuller grate clinker cooler, a third separator in the finish mill, and four 4-tube packers are being added.

Calaveras The Calaveras Cement Co. continued the program of plant expansion and improvement at San Andreas, California, which has been going on for several years. The new 360-ft. kiln has brought the burning capacity of the plant up to 7,500 bbls. per day. A new No. 120B Bucyrus-Erie shovel and additional quarry trucks have increased raw material production to a point where it easily keeps up with the kilns. Improvements are being made in the crushing department and a bottleneck in the raw-grinding department is being remedied by an enlargement of the classifiers and a change in the mill circuits.

Studies are now in progress on means of lowering fuel consumption, and a new white-cement flow sheet is under consideration to simplify the manufacture of this product.

Missouri Considerable progress was made during the year on the Missouri Portland Cement Company's 5-year modernization plan. Known to be completed and in operation are new primary and secondary rock crushing stations at the Fort Bellefontaine (St. Louis) quarry, and considerable progress has been made on the new 6,000-bbl. wet-process plant at Prospect Hill (St. Louis). This plant may be completed in 1950 according to unofficial reports.



• A new 120 B shovel loading stone to double-bodied dump trailers in the quarry of the Calaveras Cement Co., San Andreas, Calif.

Marquette The Marquette Cement Mfg. Co., which in 1948 celebrated its 50th anniversary, was not as prominently in the news, from a production standpoint, as in 1947, when plants at Nashville and Cowan, Tennessee, were purchased. The company is now on a short term program of replacement and improvement which includes the following: overhauling some of the cement storage, loading and packing facilities; changes and improvements in the crushing and grinding operations at several plants; replacement of old and inadequate clinker cooling facilities at another plant.

Quarry operations have been improved by a nearly complete replacement of shovels, trucks, locomotives, cranes, etc. A new cement storage and packing department at one plant will go into operation early in 1949. Two Strong-Scott direct-firing coal pulverizers have been put in operation at the Nashville plant.

Northwestern States The Northwestern States Portland Cement Company, Mason City, Iowa, is carrying on the one-million dollar improvement program begun late in 1947. It is stated, however, that in view of the Supreme Court decision limiting the sales area and the uncertainties of financing due to present governmental policies, there is no present intention to increase capacity.

Monarch The Monarch Cement Co., Humboldt, Kansas, has well under way the large-scale rebuilding program begun in 1947. The machine shops, storerooms and offices have been rebuilt, and the erection of the new rotary kiln with its cooler and control equipment is nearly completed.

Aetna The Aetna Portland Cement Co., Bay City, Michigan, early in 1948 completed an expansion program which included a new Allis-Chalmers kiln, a Fuller grate-type clinker cooler, silos, a packhouse, etc.

Santa Cruz The Santa Cruz Portland Cement Co., Davenport, California, has completed the installation of a third Lepol combined rotary- and grate-type kiln.

Superior The Superior Cement Corp., Superior, Ohio, completed a new packhouse to replace the one destroyed by fire in 1947.

National The National Portland Cement Co., Brodhead, Pennsylvania, has no plans for future plant expansion but has a program under way to improve the kiln, mill and crushing departments. On hand for early installation is equipment which will reduce the final size of the quarry rock. Included are a Size Cf-15-50 Pennsylvania Impactor, two Tyler screens, etc. During 1948 two new Smidth vertical and cylindrical cement coolers were installed.

Permanente The Permanente Cement Co. recently announced that it had exercised its option to purchase 498 acres of land near Helena, Montana, as the site of a cement plant.

The last vestiges of the identity of the former Yosemite Portland Cement Corp., Merced, California, disappeared when Permanente consolidated Division with its Northern California Division, moving all key personnel to its Oakland and Seattle offices.

Alaska Reports as yet only partially authenticated indicate that Alaska may soon have a new $2,500,000 cement plant with a capacity of 1,500 bbls. daily. It is to be located at Windy on the Alaska Railroad, 20 miles south of McKinley Park. Most of the equipment, it is reported, will come from a dismantled plant in the San Francisco Bay area of California.

• The new 11- by 400-ft. all-welded kiln installed at the Bellingham, Wash., plant of the Olympic Portland Cement Co.

Arizona The Arizona Portland Cement Co., headed by officers of the California Portland Cement Co., has established temporary offices at Rillito, 18 miles northwest of Tucson, Arizona, for the construction of a new 2,000-bbl. cement plant to cost $3,000,000. Equipment will include a 9½- by 350-ft. Allis-Chalmers kiln. Contracts have been let for its construction, which is expected to be completed late in 1948.

Washington News Letter

(*Continued from page* 87)

A general criticism leveled against further taxation on corporations is that it will slow down their expansion just when expansion of production is needed most to prevent further inflation and to meet our overseas and other commitments. This would occur because it would reduce the profitability of corporations, thereby making it difficult for them to float new securities or to borrow money. Furthermore, they would not be able to finance expansion out of their own income, since so much of it would be taxed away.

While these are the considerations that will bear on which decision is made, there is always the possibility that nothing will be done about taxes, while Congress and the Administration wait to see whether the prediction of a budget deficit is any more accurate than other recently bedeviled predictions.

The Asbestos Cement Products Association of Chicago has announced the publication of a manual on asbestos products entitled *The Asbestos Cement Products Reference Book.*

American Geological Institute To Seek New Mineral Reserves

With the expressed objective of speeding up the discovery of additional reserves of scarce mineral, the American Geological Institute was recently formed in Washington, D. C. The announcement of the new group was made by the National Research Council.

Eleven national geological societies having a combined membership of more than 10,000 organized the new group, which will have its headquarters at the National Academy of Sciences in Washington. Chosen to head the organization were Dr. A. I. Levorsen, dean of Stanford University's School of Mineral Sciences, president; William B. Heroy, consulting geologist and geophysicist of Dallas, Tex., vice-president; and Dr. Earl Ingerson, United States Geological Survey, secretary-treasurer.

In addition to the institute's aim to help replenish our national mineral resources, it plans to do detailed geologic mapping of the United States and distribute research information.

Texas Gulf Sulphur's Profits Facilitate Stock Repurchase

Texas Gulf Sulphur Company, reputed the world's largest sulphur producer, has arranged to buy back from the Gulf Oil Corporation 500,000 shares of its own stock at $55 a share, or a total of $27,500,000. The oil concern purchased 1,296,100 shares of Texas Gulf stock in 1934 in exchange for sulphur deposits. Proceeds from the sale are expected to be used for plant expansion by the Gulf Oil Corporation.

The reacquisition will be financed, it was stated, from Texas Gulf Company's $42,000,000 cash surplus. Profits of this concern, it is anticipated, will reach a new high for the current 12-month period, reflecting a sizable increase in output and sales. Earnings are expected to be in excess of $6 per share on 3,840,000 common stock shares, as compared with $5.64 per share (on the same number of shares) in 1947 and $3.97 in 1946.

Texas Gulf has recently supplied approximately 75 percent of the sulphur required by the Sulphur Export Corporation, an export organization formed in 1922 under the Webb-Pomerene Act.

Expanded production was made possible this year through the increased output from the Moss Bluff Dome, Tex., deposits, which supplemented the main operations at Boling Dome, Newgulf, Tex. In June of this year a new mill went into operation at Moss Bluff, and production there has increased consistently since the plant opened. In addition to these resources the company has other properties in this country, not yet fully explored but believed to contain sufficient sulphur for an indefinite period.

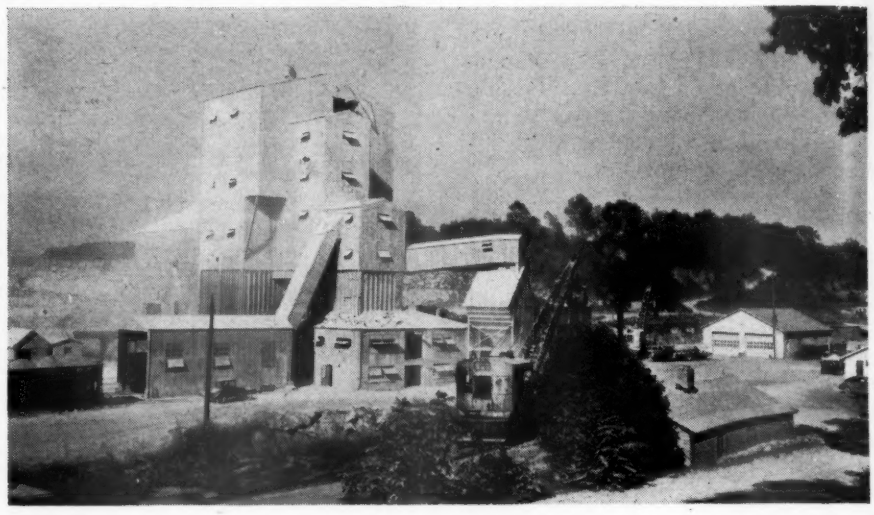
Aggregate Production

New Peaks Reached in 1948 Output of Sand and Gravel and Crushed Stone

FROM all available indications the production of sand and gravel and crushed and broken stone in 1948 reached new peak levels, each surpassing by sizable margins the previous peaks attained in 1942 under the impetus of the war construction program. Data sent to PIT AND QUARRY by the producers in all sections of the country show a rise of approximately 10 percent in sand and gravel output, and of almost 12 percent in the production of crushed and broken stone. Although gains were shown in all areas, the far West appeared to be the chief beneficiary of the full-blown construction boom in the year just closed.

By WILLIAM M. AVERY

Increases in the production of both materials rather closely approximated PIT AND QUARRY's predictions of a year ago, which were based on a survey questionnaire mailed to producers late in 1947. At that time the consensus of sand and gravel producers was that 1948 output might top 1947 by as much as 6½ percent, while producers of crushed stone predicted a rise of approximately 11 percent. Both industries then indicated that total plant capacity would be increased by about 10 percent to take care of the anticipated rise in demand.



• General view of Columbia Quarry Company's No. 1 plant at Krause, Ill. Production was resumed in June of this year, following a 10-month shutdown for reconstruction.

SAND AND GRAVEL

Figures released by the Bureau of Mines several months ago show 1947 production of 287,659,000 short tons, valued at $216,869,000, representing an increase of 13 percent in quantity and 27 percent in value over 1946. The indicated increase of 10 percent over 1947 output would place the industry's 1948 production at over 316,000,000 tons, some 12,000,000 tons over the peak established in 1942. Probably 75 percent of total production in 1948 was accounted for by commercial plants, the remainder being supplied by federal, state, county and municipal governments.

Data obtained in PIT AND QUARRY's survey of the industry were insufficiently detailed to permit even reasonably accurate estimates of production in the various states. They indicated in general, however, that there was little change from the 1947 distribution pattern. In that year, as in 1946, California was the largest producer; Michigan, Wisconsin, Illinois, Ohio, New York, Minnesota followed in that order. In 1947 these 8 states, each with an output of more than 13,000,000 tons, accounted for about 48 percent of total production in the United

• Below: The newly-modernized plant of the Owl Rock Products Co., at Compton, Calif.

States. The largest production gains were shown by producers in the East (about 12 percent) and the West (approximately 18 percent). The Midwest was just under the average, with a showing of 9 percent, and the South trailed with 6 percent.

Average f.o.b. selling prices reported by producers showed gains in all sections except the South, where almost no change was indicated. In the East the average increase was almost 5 cents per ton (from $1.12 to $1.17), and a similar increase in the Midwest jumped the average price from 74.5 cents to 79.7 cents per ton. Production costs showed increases in all sections of the country, with the West leading the parade with a jump of almost 7 cents per ton from January 1st to November 1st. Both the East and the Midwest showed an increase of about 5 cents per ton, and the South was least affected, with an advance of a little over 3 cents per ton.

A fair share of increased production costs was accounted for by wage increases made during the year. In both the East and the Midwest average hourly wages were hiked about 7 cents (from $1.29 to $1.36 per hour in the East, and from $1.05 to $1.12 per hour in the Midwest). Our Western informants reported an hourly average of $1.28 on January 1st, as against $1.31 late in the year. There was too little data from Southern producers to make averages significant, but reported increases ranged from 2 to 4 cents per hour.

Our questionnaire asked for figures on hourly capacity as of January 1st and November 15th to determine to what extent the industry's total plant facilities had been expanded during the year. Rather gratifyingly, the returns exactly confirmed the industry's prediction of a year ago that it would expand plant capacity by approximately 10 percent. Generally speaking, the pattern followed the showing in respect to production increases—the West leading with a 20 percent jump in hourly capacity, the Midwest reporting about 12 percent, and the East and South trailing at around 3½ percent. If the figures accurately reflect capacity expansion in the industry as a whole, one conclusion is inescapable, sand and gravel producers are making a concerted effort to handle peak production as much as possible within the limits of a 40-hr. work week.

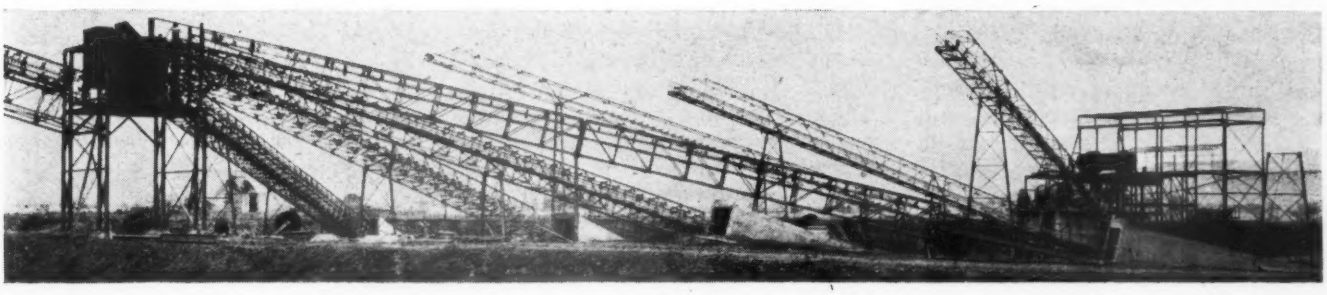
Although a fair number of entirely new plants were built during 1948, a major share of the capacity expansion noted during the year was directly attributable to expansion or rebuilding programs affecting existing facilities. One important new plant, the $2,000,000 Pacific Coast Aggregates installation at Eliot, California, replaces the old Coast Rock & Gravel Co. plant with a completely modern unit capable of producing and loading over 1,000 tons of material an hour. This was part of a $7,000,000 replacement-expansion program.

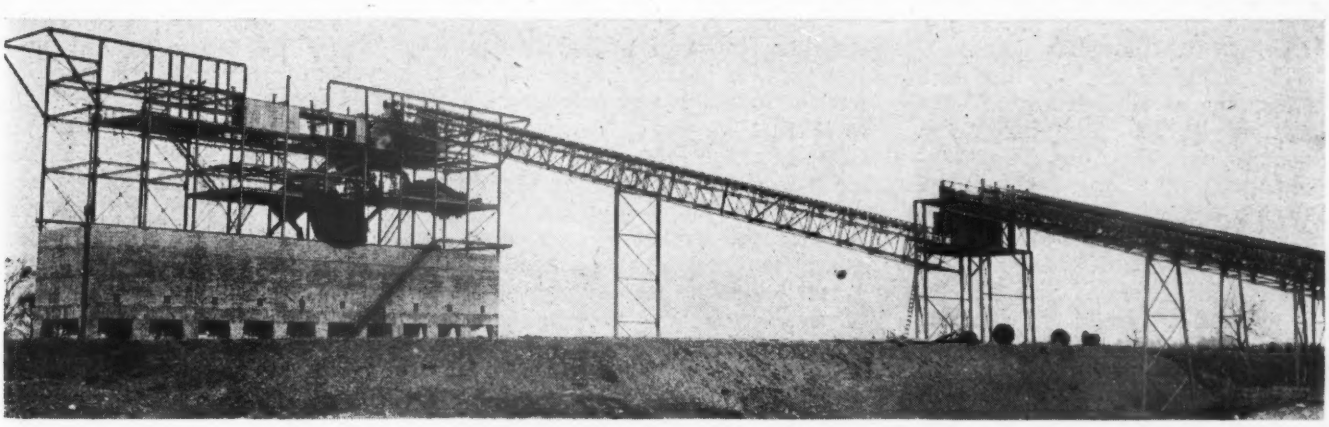
Another West Coast development during the year was a $500,000 modernization program at the Irwindale, California, plant of the Consolidated Rock Products Co. In addition to increasing capacity to about 1,000 t.p.h., the program was designed to make the plant one of the most modern in the West.

Brannan Sand and Gravel Co., the largest producer of aggregates in the Denver area, completed a new 250-t.p.h. plant in 1948, supplementing the production of four older plants. Early in the year The Warner Company of Philadelphia placed the rebuilt dredge Franklin in service in the Delaware River to dig and load finished products, screened and crushed, to ease the production load on the company's huge Van Sciver plant. These and countless similar projects carried out in every section

• Two views of Pacific Coast Aggregates new plant at Eliot, Calif., during construction. In the upper picture are shown the various conveyor structures leading from the surge pile reclaiming tunnels. In the lower one the main conveyor to the washing and screening building is seen. Below the washing and screenings are 20 reinforced concrete loading bins.

Completion of this plant, said to be the largest of its kind in the world, will round out Pacific Coast's $7,000,000 replacement-expansion program. Together with other new facilities at Kerlinger and Centerville, the Eliot operation will boost the total production to 1,700 t.p.h., a net increase of 1,200 t.p.h. Cost of the Eliot plant is estimated at $2,000,000. These facilities, which replace the old Coast Rock & Gravel Co. plant, can produce and load more than 1,000 tons of material in an hour. Eight sizes of crushed rock, eight sizes of gravel and four sizes of sand will be turned out.





account for the industry's 10 percent increase in overall productive capacity in 1948.

PIT AND QUARRY's questionnaire asked for expressions of opinion regarding the outlook for 1949. For understandable reasons many of those who sent in data chose to ignore this highly speculative question. Of those who answered it, 46 percent said they anticipated "some" increase in demand, 33 percent thought it would be about the same, and 21 percent predicted a drop. This cautious approach to the new year was reflected in the replies to our question about expansion programs in 1949. Seventy-six percent of the replies reported no plans for expansion, 21 percent said they would attempt some expansion. The remaining 3 percent were doubtful.

CRUSHED STONE

Reports to the Bureau of Mines indicate that the output of crushed and broken stone in 1947 (excluding stone used in the manufacture of lime and cement) totaled 206,136,000 short tons, valued at $248,452,000. The increase of 16 percent in quantity and 23 percent in value over 1946 was somewhat larger than PIT AND QUARRY'S survey indicated a year ago. Applying the recent questionnaire showing of a 12 percent increase to the Bureau of Mines figure for 1947 suggests that the industry's 1948 output was somewhat over 230,000,000 tons, a sizable jump over last year's peak production, and far above 1942's wartime peak of 194,537,000 tons.

Although all sections of the country showed increases in 1948, the amounts varied considerably, with the East showing about 8 percent, the Midwest almost 14 percent, and the South and West both around 25 percent. The data available are insufficient to permit a breakdown by states. In 1947, limestone, including dolomite, constituted 73 percent of all crushed and broken stone sold (excluding use in the manufacture of cement and lime), and it was quarried in all but four states.

The value of the product continued the steady rise which has been noted each year since 1940. From $0.91 in that year the average value per ton has increased by small increments to $1.20 in 1947. In the year just closed it probably reached $1.25 per ton due to further cost increases which seem to have affected all producers. Producers who submitted data to PIT AND QUARRY reported cost increases which averaged close to 9 cents a ton. Average increases reported for the four major geographical divisions of the country were as follows: East, 8 cents per ton; Midwest, 9.4 cents per ton; West, 12 cents per ton; and South, 5 cents per ton. Wages as usual accounted for a good share of the increase. In the East average hourly wages jumped from $1.14 to almost $1.24; in the Midwest, from $0.94 to $1.00; and in the South, from $0.84 to $0.91. Data from the West were scattered and inconclusive.

Despite the jump in production costs, advances in selling price were quite nominal, and the average for all the companies which submitted information was only about 2 cents per ton (from $1.39 to $1.41 per ton). The average increase was the same for all sections of the country —either a whopping coincidence or a strong indication that more data were needed to arrive at a true picture.

The industry's productive capacity per hour rose 8½ percent in 1948, the largest increase being shown in the South (almost 25 percent) and the least in the East (a little over 3 percent). In a similar survey mailed out late in 1947 producers indicated that they would up capacity by 10 percent in 1948—a pretty fair agreement between promise and performance. As in the case of sand and gravel, the increased productive capacity of crushed stone plants came about mainly as a result of expansion and rebuilding programs affecting existing facilities. Among the important expansion projects of the year was Kingston Trap Rock Company's new 800-t.p.h. plant designed to replace a much smaller unit at Kingston, N. J. The primary and secondary crushing and recrushing departments are now in service, and a new screening plant will be built this winter. Columbia Quarry Company completed work on a new 400 t.p.h. plant at Krause, Ill., replacing the plant which was destroyed by fire in July, 1947. Improvements carried out in conjunction with the rebuilding program resulted in about 100 t.p.h. of increased capacity. It was the summation of programs like these that increased the industry's capacity in the year just closed.

Crushed stone producers showed considerably more optimism about the prospects for 1949 than their opposite numbers in the sand and gravel industry. Almost 65 percent of those who sent back questionnaires predicted that there will be an increase in the demand for their products in 1949. Nineteen percent predicted that volume would be the same and 16 percent thought it would be down somewhat. In spite of this rosy view at the grass roots level, only 22 percent of our informants reported plans for expanding capacity in 1949.

AGRICULTURAL LIMESTONE

Unfortunately only a few of the questionnaires received showed the requested breakdown between limestone for agricultural purposes and other uses. As a result we have no information on which to base an estimate of 1948 production of agstone. According to information reported by producers to the Bureau of Mines, agstone accounted for 11 percent of the total output of crushed and broken stone in 1947, or about 22,675,000 short tons. In spite of several factors which seemed to indicate a sizable drop from the 1946 level of production, this was actually only about 1 percent lower, suggesting that the curtailment of A.A.A. subsidies during the year had not affected total consumption nearly as much as had been feared. It seems likely, however, that the full impact of A.A.A. curtailment may not have been felt until 1948—a possibility which suggests strongly that consumption of liming material in 1948 may have been somewhat less than in 1947, possibly down to around 20,000,000 tons. There are some indications of a slump in price to support this supposition. Whether or not this downward trend will carry over into the new year seems largely dependent on at least two important factors: Congressional action on A.A.A. subsidies, and continued high farm income.

BLAST FURNACE SLAG

The production of blast furnace slag in 1948 very probably reached 21,000,000 tons to set a new peak for the industry. This was a 7½-percent increase over the 19,581,000 short tons reported by the Bureau of Mines for 1947, which was in turn about 17 percent above the 1946 figure. About 92 percent or 15,426,000 tons, of 1947 production was used as railroad ballast, as aggregate in concrete, bituminous construction of all types, miscellaneous highway construction uses, and in the manufacture of concrete masonry units. The remainder of the screened air-cooled slag was consumed in the manufacture of mineral wool, roofing granules, sewage filters, agricultural and other uses. Although iron blast furnace slag is produced in 13 states, the Bureau of Mines report points out, three states (Alabama,

(*Continued on page* 101)

Production of Many Nonmetallic Minerals Set Records in 1948

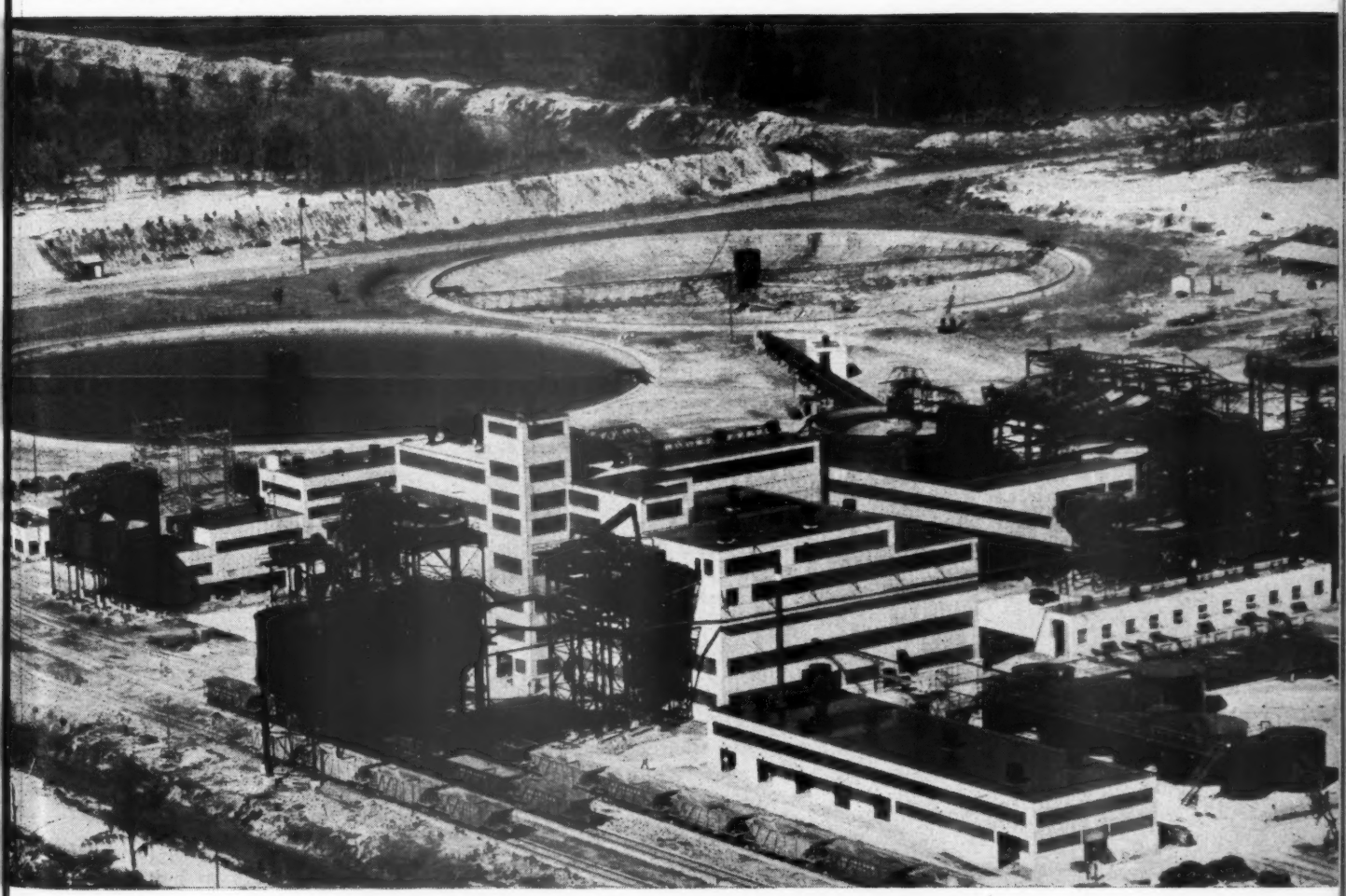
Prospects for 1949 Indicate Continued High Demand

THE nonmetallic minerals industries as a whole, other than cement and aggregates, had another record-breaking year in 1948, individual industries in some cases breaking the 1947 all-time highs by a larger margin than they in turn broke 1946 records. No conclusive official figures are yet available on any of these industries, but nearly complete figures on some and direct information from producers on others is convincing evidence.

In 1947 new all-time records were set in the production of asbestos, barite, ball clay, bentonite, gypsum and gypsum products, kaolin, phosphate, potash, pumice, roofing granules, salt, slate, talc and pyrophyllite, etc. The average increase over 1946 was nearly 20 percent. It seems probable that most of these industries again set new records, but only phosphate, sulphur and gypsum and gypsum products are as yet known to have done so. Many other industries did not set new records in 1947 but did exceed 1946. Among these were magnesite, quartz, tripoli, garnet, grinding pebbles, pigments, fluorspar, bauxite, fullers earth, etc. These were up an average of about 12 percent over 1946 and probably showed increases in 1948. Only one industry is known to have suffered even a slight loss in output in 1947 and that industry—lime—showed a considerable gain in 1948.

New plants and plant expansions in 1948 added considerably to the capacities of these industries. Some of these were model operations far ahead of general practice in their industries. Particularly outstanding new plants were built in the phosphate, gypsum, roofing granules and talc industries.

Gypsum The production of gypsum and gypsum products in 1948 apparently continued the upward swing begun in 1945, setting a new all-time record in both volume and value. Because of the numerous uses and by-products involved the only suitable basis of comparison is the tonnage of crude gypsum mined in the United States and imported. Partial official figures for 1948 indicate an increase of about



This general view shows the principal International buildings at Noralyn, with the two giant thickeners in the background. Tailings are stored in the dammed area in the far background.

View of material receiving dock of National Gypsum's new board plant at Baltimore.

19 percent over the 1947 record figure of 8,365,265 tons, or nearly 10 million tons. Gypsum mined in the United States apparently jumped about 15 percent from 6,208,216 tons in 1947 to over 7 million tons in 1948, and imported gypsum rose about 30 percent from 2,157,049 tons in 1947 to nearly 3 million tons in 1948. Because of this and of further price increases during 1948 the value of all products was undoubtedly far ahead of the 1947 record of $128,181,671.

During 1948 the capacity of the industry in all its various categories was increased considerably. One of the biggest contributors was the National Gypsum Co., which during the year virtually completed its 30-million-dollar post-war expansion program. Early in the year operations began at the new $6,000,000 plant at Baltimore, Maryland. Projects since completed are the $1,500,000 improvement of the plant at Clarence Center, New York; the doubling of the capacity of the mines and plants at Medicine Lodge, Kansas, the $600,000 expansion of the lath plant at Niles, Ohio; the $250,000 improvement of the Fort Dodge, Iowa, operations.

During the year the National Gypsum Co. closed down its historic 41-year-old mine at Akron, New York, but this had no effect on output. The plant from now on will be supplied from the nearby Clarence Center mine.

Comparatively little is known about what the United States Gypsum Co. did on its $42,000,000 expansion program during the year, but its productive capacity was materially increased. Early in the year production was begun at its 64th plant, the new $2,000,000 operation at Norfolk, Virginia. New plants also went into operation at Plaster City and Los Angeles, California, Ashway, New Jersey, Sigurd, Utah, and Berkeley, West Virginia. The plant near Loveland, Colorado, which was badly damaged by fire in June, 1948, is back in operation.

An important development of the year was the purchase by the U. S. Gypsum Co. of the plaster mill and gypsum properties of the Pacific Portland Cement Co. at Gerlach, Nevada. The Pacific company continues to operate all its other gypsum properties in California and Nevada.

The Western Gypsum Co. during the year completed its new board and plaster plant at Sigurd, Utah. (See PIT AND QUARRY, October, 1948, pp. 79-84). The deposit was acquired from the old American Keene & Cement Plaster Co., which had operated a small keene plant there.

Phosphate With the demand for phosphate increasing in this country and elsewhere, the rock phosphate industry in the United States apparently had to strain its greatly-expanded operations in 1948. No official figures are yet available but output undoubtedly far exceeded the 9,121,081-ton record production of 1947. The record value of 1947 was also eclipsed, as was the P_2O_5 content.

The prospects for 1949 indicate a continued increase in demand and the industry apparently will be well equipped to meet it. The outstanding development of the year was, of course, the new 1,500,000-ton, $10,000,000 super plant and mine of the International Minerals & Chemical Corp. at Noralyn, Florida. (See PIT AND QUARRY, June, 1948, pp. 66-70 and 79-82.) This mammoth operation dwarfs anything else in the industry, even International's Peace Valley plant, which was the former standard-bearer. It is estimated that International alone can now produce 3,500,000 tons annually from its Florida operations. Scheduled for completion early in 1949 is the $1,300,000 conveying, drying and shipping installation to serve the Noralyn plant, which is being built by the Rust Engineering Co.

Swift & Co. in 1948 acquired its second phosphate rock mine in Florida and completed its new washer and flotation plant near Fort Meade.

The Simplot Fertilizer Co., Pocatello, Idaho, expanded its operations there. It also purchased the $4,500,000 Kalunite plant at Salt Lake City, Utah, which will be remodeled at a cost of about $700,000 for the manufacture of ammoniated sulphate and triple superphosphate.

A $1,500,000 phosphate plant at Wendell, Idaho, was reported recently completed by the Idaho Farm Bureau Federation and Gates Bros., Inc.

Lime and Roasted Dolomite The production of lime and roasted dolomite is always difficult to estimate because the only figures available during the year are those the National Lime Assn. receives from its members only. These figures are also exclusive of captive production and roasted dolomite. A year ago we estimated the 1947 commercial lime output at about 4,73,000 tons, about 3 percent under 1946. On the same basis it appears that 1948 lime production was about 4,825,000 tons, about 3 percent over 1946.

Several new plants and numerous improvement programs increased the capacity of the industry during 1948. Probably the outstanding development was the new $450,000 plant of Limestone Products, Inc., (See PIT AND QUARRY, May, 1948, pp. 86-89.) near Cleburne, Texas. This model operation, designed and built under the supervision of L.I.M.E., Hershey, Pennsylvania, has many interesting features including Leco (Lime Equipment Co.) 10-ton capacity lime producers.

Basic Refractories, Inc., completed an $1,800,000 installation at its Maple Grove, Ohio, plant; the Cutler-Magner-LaLiberte Co. completed a new rotary kiln plant at Superior, Wisconsin; the H. E. Millard Lime & Stone Co., added a third rotary kiln and other equipment to its Annville, Pennsylvania, plant; the Kelley Island Lime & Transport Co., completed a large vertical-kiln plant at Glass Rock, Ohio, and a new $800,000 crushing and screening plant at Gibsonburg, Ohio; (described in PIT AND QUARRY, Sept., 1948, pp. 83-85); the Dolite Co., Gibsonburg, Ohio, installed a new 173-ft. Nordberg kiln, a 615-hp. National Supply Co. diesel engine and other equipment; the Auburn Lime Co., Auburn, California, added a second rotary kiln to double its capacity. Several new plants were also built during the year which incorporate the Ellernan calciner.

An important development of the year was the purchase of the Marblehead Lime Co. by the Material Service Corp. of Chicago. It is being operated as a subsidiary, with no change in management.

The Mississippi Lime Co., Alton, Illinois, early in 1948 bought the Ste. Genevieve Lime Works, the Peerless Lime Co., and the Glen Park Glencoe Lime Co., each operating a plant in Missouri.

Roofing Granules The roofing granules industry in 1948 apparently set a new production record for the fifth consecutive year. No official figures are yet available, but indications are that production considerably exceeded the record of 1,695,420 tons set in 1947, which in turn was 23 percent ahead of 1946. It seems probable that 1949 volume may set another high mark.

The industry during 1948 continued the extensive post-war expansion of production facilities. The leader in this respect was again the Minnesota Mining & Mfg. Co., which in 1947 completed a major expansion program at Wausau, Wisconsin, and put in operation a new 250,000-ton plant at Little Rock, Arkansas. The company's new 100,000-ton plant at Corona, California, was completed late in 1948. Other producers were also active.

Talc, Pyrophyllite and Soapstone The production of talc, pyrophyllite and soapstone in 1947 set another new record with a total of 516,094 tons, 13 percent over 1946. No official figures on 1948 are yet available, but another record is indicated. Still another record is in sight for 1949 and the industry is well equipped to meet any possible demands. Productive capacity was increased considerably in 1947 and again in 1948.

In 1948 the International Talc Co. began work on increasing the capacity of its No. 6 mill at Hailesboro, New York. This was done to offset the loss in production caused by the complete destruction by fire of the No. 3 mill there. Plans for a new mill at Gouverneur, New York, are also under way.

The Gouverneur Talc Co. late in 1948 put in operation a modern new talc mill at Gouverneur, New York. This company is a subsidiary of the R. T. Vanderbilt Co.

Sulphur The production of sulphur through October, 1948, was up about 10 percent over the same period in 1947. On this basis the output for the year was about 4,800,000 tons for another new record.

Bauxite The production of bauxite in the United States, which in 1947 regained some of the volume lost since the record war years, apparently made further gains in 1948. Production in 1947 was 1,215,308 tons (dried equivalent), 13 percent over 1946.

Industrial Clays In 1947 the production of industrial clays was up considerably, setting new records in most categories. Bentonite production was a record 763,889 tons, up 27 percent; the ball clay record was 269,050 tons, up 11 percent; the kaolin record was 1,425,106 tons, up 8 percent. Fullers earth production at 329,068 tons was up 10 percent but was 2 percent under the 1930 peak. Further increases were made in 1948 and gains are expected for 1949.

Natural Abrasives The output of natural abrasives approached record levels in 1947, totaling well over 1,216,000 tons. The 442,552 ton record output of pumice and pumicite was 36 percent over 1946. Ground sand was up 13 percent for a new level of 651,120 tons. Tripoli was up 19 percent to 34,578 tons, the highest output since 1937. Quartz at 73,347 tons was up slightly; grinding pebbles at 5,860 tons was up 26 percent. No figures on diatomite are made public but the field was active.

Others The other nonmetallic minerals which set new records in 1947 were: asbestos, 25,139 tons, up 74 percent, still forming only 4 percent of the total used; barite, 884,219 tons, up 22 percent; potash, 1,907,776 tons, up 13 percent; salt, 16,138,374 tons, up 7 percent; slate, 876,010 tons, up 15 percent. Magnesite production of 375,993 tons was the highest since 1944. Pigments at 115,367 tons were up slightly; fluorspar at 329,484 tons was up 20 percent from 1946 but was still far below the 1942 to 1944 war-time peaks.

General view of Kelley Island plant. Left to right: No. 1 kiln plant; slope to No. 1 kilns; old crusher plant (to be removed); No. 2 kiln plant; kiln stone bins; fine screening plant; primary screening building; conveyor gallery; crusher building; air compressor room; and substation.

The Construction Picture

ACTIVITY in the major nonmetallic minerals industries is inextricably intertwined with the rising and falling volume of new construction. To twist a time-honored phrase: As construction goes, so go the nonmetallics.

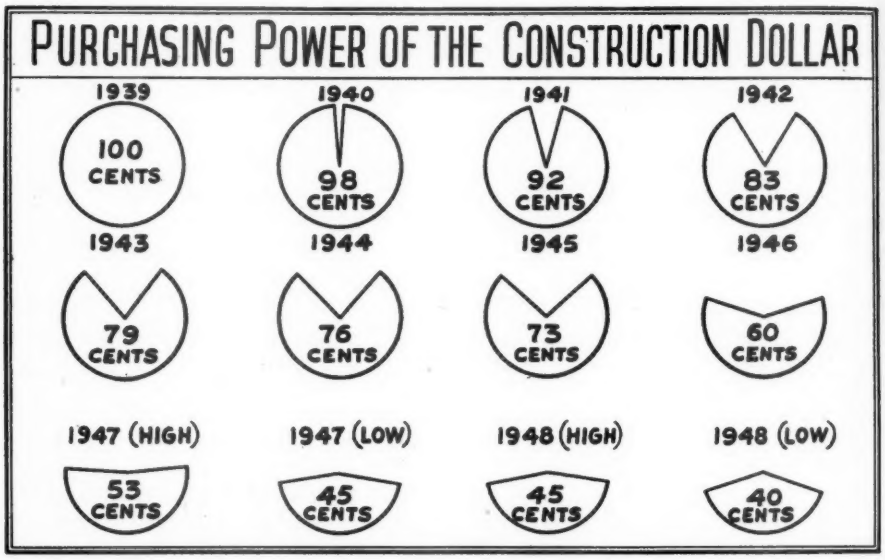
In an effort to ascertain what 1949 holds in store for the nonmetallic minerals industries, as measured by the construction barometer, PIT AND QUARRY asked a number of statistical and fact-finding organizations for their opinions and appraisals of 1949 construction trends. The report which follows is, in a large measure, a compilation of answers received from these organizations, which included the American Appraisal Company, the Associated General Contractors of America, Inc., the Federal Works Agency, F. W. Dodge Corp., and Standard and Poor's Corporation. We feel that this report, although primarily concerned with construction, will, by reflection, accurately gauge the expected activity in 1949 of the nonmetallic minerals industries. More specific reviews and forecasts on particular industries may be found elsewhere in this issue.

By EDWARD BRUNENKANT

ACTIVITY IN '48

To better appraise the construction picture for the coming year, let's study for a moment what happened in 1948. It seems rather definite at this date that final tabulations will place last year's outlays for new building construction in the neighborhood of $18 billion ($17,700,000,000 according to latest estimates of the Public Works Agency), up some 26.7 percent over 1947.

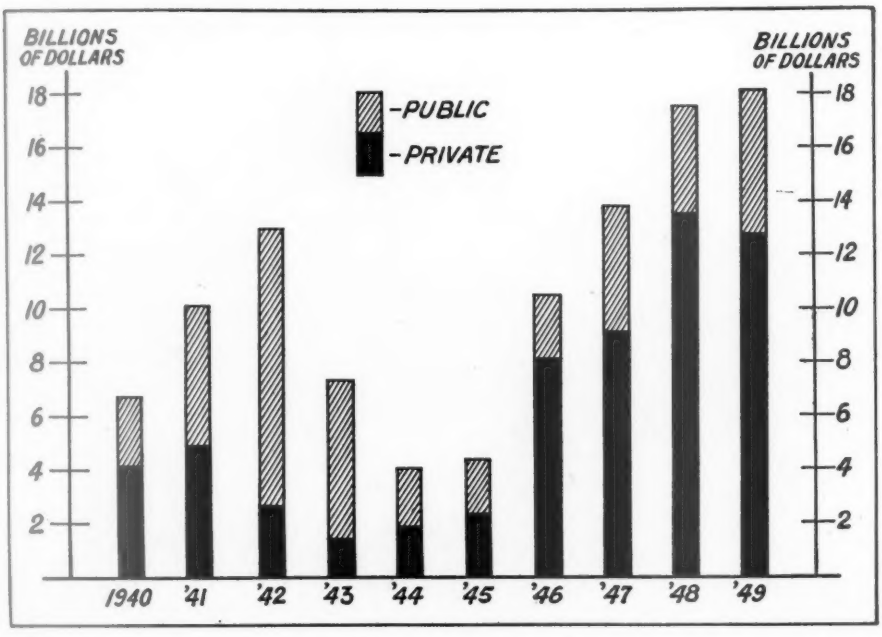
Higher prices undoubtedly accounted for a large share of this increase since the purchasing power of the construction dollar depreciated from 53 cents early in 1947 to a low of 40 cents in 1948 (see illustration). A substantial increase in the monetary supply has some mitigating influence upon this deterioration of purchasing power, but its effect is not measurable, or not, at least, within the scope of this report.



Values based upon the Index of Construction Costs of The American Appraisal Company. This index is a composite figure computed for the construction materials and labor required for four representative types of buildings.

A truer picture, perhaps, of the size of 1948 construction than a dollar appraisal is gleaned from a comparison between the number of new dwellings started in 1948 as against 1947—an estimated 950,000 in '48 versus 849,000 in '47, nearly a 12 percent increase. Very likely the final count of new dwelling starts in 1948 will exceed the all-time record previously established in 1926.

According to The American Appraisal Company's Cost Trend Chart, wages rose approximately 8.8 percent from the 4th quarter of 1947 to the 3rd quarter of 1948, while cement prices (f.o.b. Chicago), increased nearly 13.1 percent in the same period. The lumber index at 682 (1913 base year of 100) for the 4th quarter nearly ran off the chart. This index is based on construction material and labor required for four representative types of frame, brick, concrete, and steel buildings, exclusive of building fixtures, averaged for 30 representative cities. It gives no recognition to premiums on materials, bonuses, or wages for overtime. As an interesting sidelight this index indicates



Dollar value of new construction in the United States for the years 1940-1949, as estimated by the Departments of Labor and Commerce.

that, out of 22 of this country's largest cities, construction costs are highest in Atlanta, Baltimore, and Buffalo in that order.

WHAT'S AHEAD IN '49

The concensus of opinion of our panel of experts is that private construction in 1949 will drop off somewhere between 4 and 10 percent, while public-financed building will increase around 25 percent. If these estimates are correct, new construction this year will total approximately $18,250,000,000, with $5 billion coming out of federal and state-local funds and $13.25 billion provided by private resources.

The Democratic victory in the recent national election points to a renewed and successful pressure for increased federal participation in housing, probably along the lines proposed by the Taft-Ellender-Wagner bill. Federal expenditures for such purposes, added to the already staggering budget for military as well as foreign economic stabilization, may further tend to decrease the purchasing power of the dollar or, in other words, mean an additional increase in construction costs. However, it is extremely doubtful whether Congressional action will be soon enough to affect the construction picture for the calendar year of 1949.

A further implication of the recent election is that labor will be encouraged to seek additional wage increases in key industries. In addition, organized labor has virtually been promised speedy repeal of the Taft-Hartley Act. Outright repeal of Labor-Relations Management Act without substitution of another similar, although perhaps weaker law is most dubious in view of the law's salutory effect upon industrial peace. As a yardstick of the law's effectiveness in relations to strikes, Standard and Poor's had this to say: "In the year following enactment of the Taft-Hartley Act —the period from July, 1947, through June, 1948—the number of man-days idle through strikes dropped to 33,400,000 from 48,375,000 in the previous year, a decrease of 31 percent."

According to a majority of 112 leading economists who participated in a poll conducted by F. W. Dodge Corporation, the industrial picture for 1949 looks like this: Moderate declines in wholesale prices of commodities, in cost of living, industrial production and employment. In other words a leveling out of the post-war boom, without the dangers inherent in a serious price deflation.

In the last analysis, the volume of new construction in 1949 will depend upon a great many variable factors—labor, availability of construction materials, further consumer resistance to high prices, clarification of the controversial Cement Decision, and government legislation and participation in building. Whether or not the dollar value for 1949 construction actually reaches $18 billion is merely a matter of conjecture. But it seems clear, at this writing, that the construction industry is destined to enjoy another year of high activity.

Construction Activity for 1947[1], 1948[2], and 1949[2]
(Millions of Dollars)

	1947	1948	1949
Total New Construction	13,977	17,700	18,250
Total Private	10,893	13,650	13,250
Residential (non-farm)	5,260	7,050	6,650
Non residential	3,131	3,510	3,340
Farm	450	560	555
Utilities	2,052	2,530	2,605
Total Public	3,084	4,050	5,000
Federally Financed	1,175	1,350	1,700
State—Locally Financed	1,909	2,700	3,300
Residential (non-farm)	182	60	100
Non residential	505	970	1,325
Military	204	150	200
Highways	1,233	1,540	1,750
Conservation and Development	396	610	800
Sewer and Water	331	460	525
All Other	233	260	300

[1]Revised data from the Departments of Labor and Commerce.
[2]Estimates of overall totals and breakdown of public construction activity prepared by the Federal Works Agency. Breakdown into types of private construction activity for 1948 and 1949 estimated by Pit and Quarry's research department.

Aggregate Review

(*Continued from page* 96)

Ohio and Pennsylvania) accounted for 68 percent of the total tonnage reported in 1947.

An important development noted in 1947 was the substantial increase in the output of lightweight expanded slag. The reported production of 1,130,600 tons was 46 percent higher than the tonnage reported in 1946. A further gain was undoubtedly made in 1948. In spite of this upward trend, however, E. W. Bauman, managing director of the National Slag Association, pointed out in his recent annual report that approximately 12,000,000 tons of slag were wasted in 1947. A considerable share of this wasted tonnage could undoubtedly be used to ease the now almost chronic shortage of lightweight aggregates.

It's Epidemic—Great Britain Has Its Cement Malady, Too

That a cement shortage is not an industrial gadfly plaguing the American construction trades exclusively is revealed by reports of a serious curtailment of cement supplies in Great Britain.

D. C. Burgess, who heads the London Master Builders' Association, recently stated in an address at Croydon that the shortage had affected every job in the country, slowing down construction in some instances and causing complete cessation of work in others.

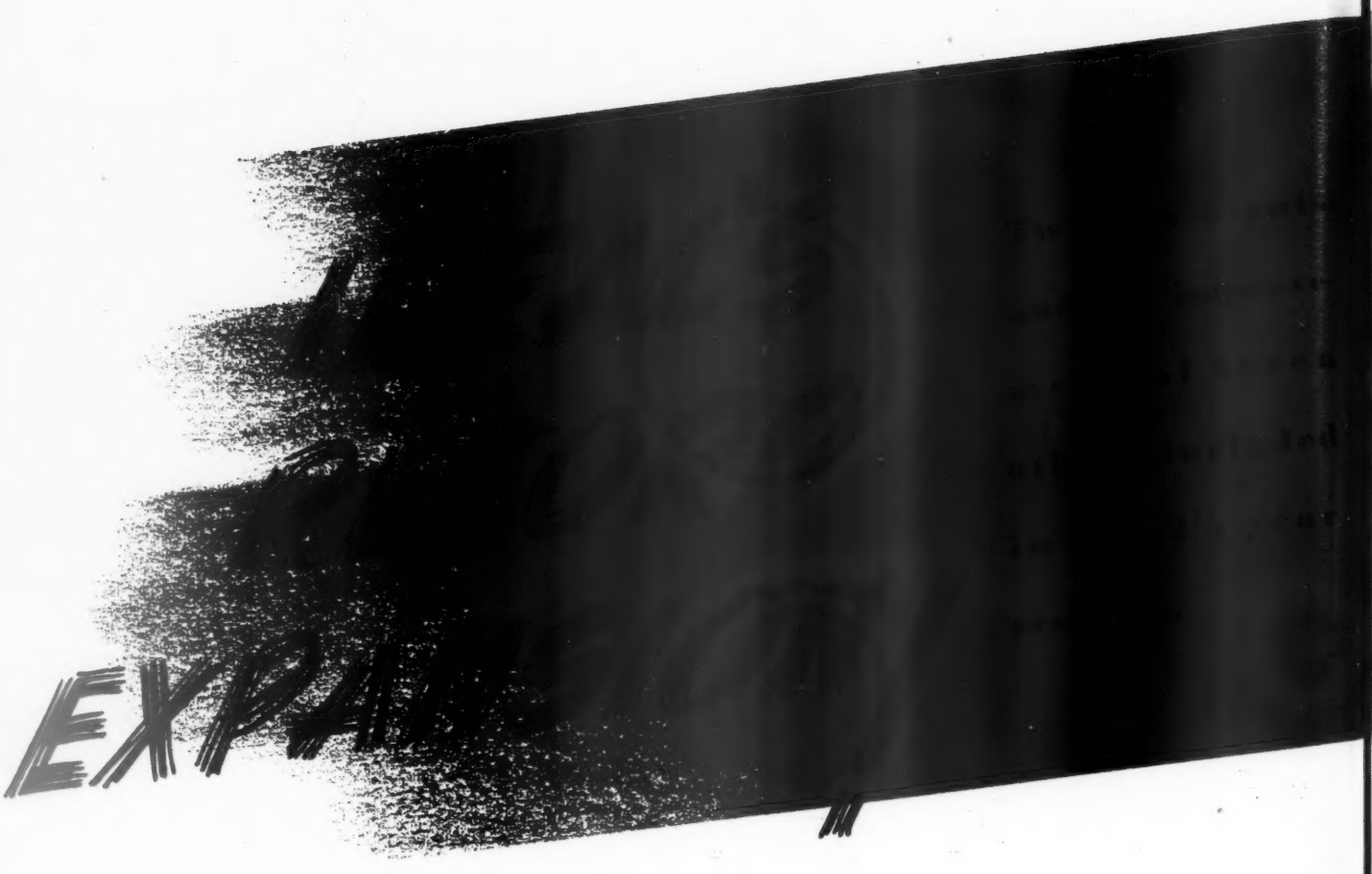
It was said that although cement production during the current year had been higher than in 1938, the supply available for home use was cut to less than the pre-war amount by exports which took almost 20 percent of the output. Shipments out of the country were made, it was explained, to meet government commitments for overseas development schemes. Replacement supplies were not available because these would require dollar expenditure.

Moreover, the construction of landing strips to accommodate huge modern planes, as well as requirements of cement for various hydro-electric developments in Scotland and elsewhere in the British Isles, made heavy demands upon the cement industry. Producers are presently looking for temporary relief and a chance to catch up on some of the most urgent domestic orders as the seasonal slackening of building operations tapers off demand.

Revised Edition of Work on Exhaust Systems Published

Design of Industrial Exhaust Systems, by John L. Alden, assistant works manager of the Western Electric Company's Kearny plant, is a completely revised edition of the book, which was first published in 1939. In addition to the revision, the author has also added new chapters to the treatise.

Dust and fume removal is the problem covered by the book, which explains "how to design, build or buy an exhaust system that will adequately and economically perform the functions required by law or prescribed by specialists in industrial hygiene. Published by the Industrial Press. Price, $3.50.



By Walter E. Trauffer

another ON THE SPOT report

THE two completely new plants of the Ideal Cement Co. at Portland, Colorado, and Devil's Slide, Utah, which went into operation within the past few months have received considerable publicity in these pages and elsewhere during various stages of their construction since plans for them were first announced. (See PIT AND QUARRY, July, 1946, p. 89; October, 1946, pp. 73-74, for complete details.) Much interesting but fragmentary information was given in various succeeding articles, but no complete descriptions of both plants, after they were completed and in full operation, have been published. These plants are so outstanding in their design, construction and operation and contain so many unusual and interesting features, many of them new and unpublicized, that we are presenting herewith such a complete article even though it duplicates some of the information already published.

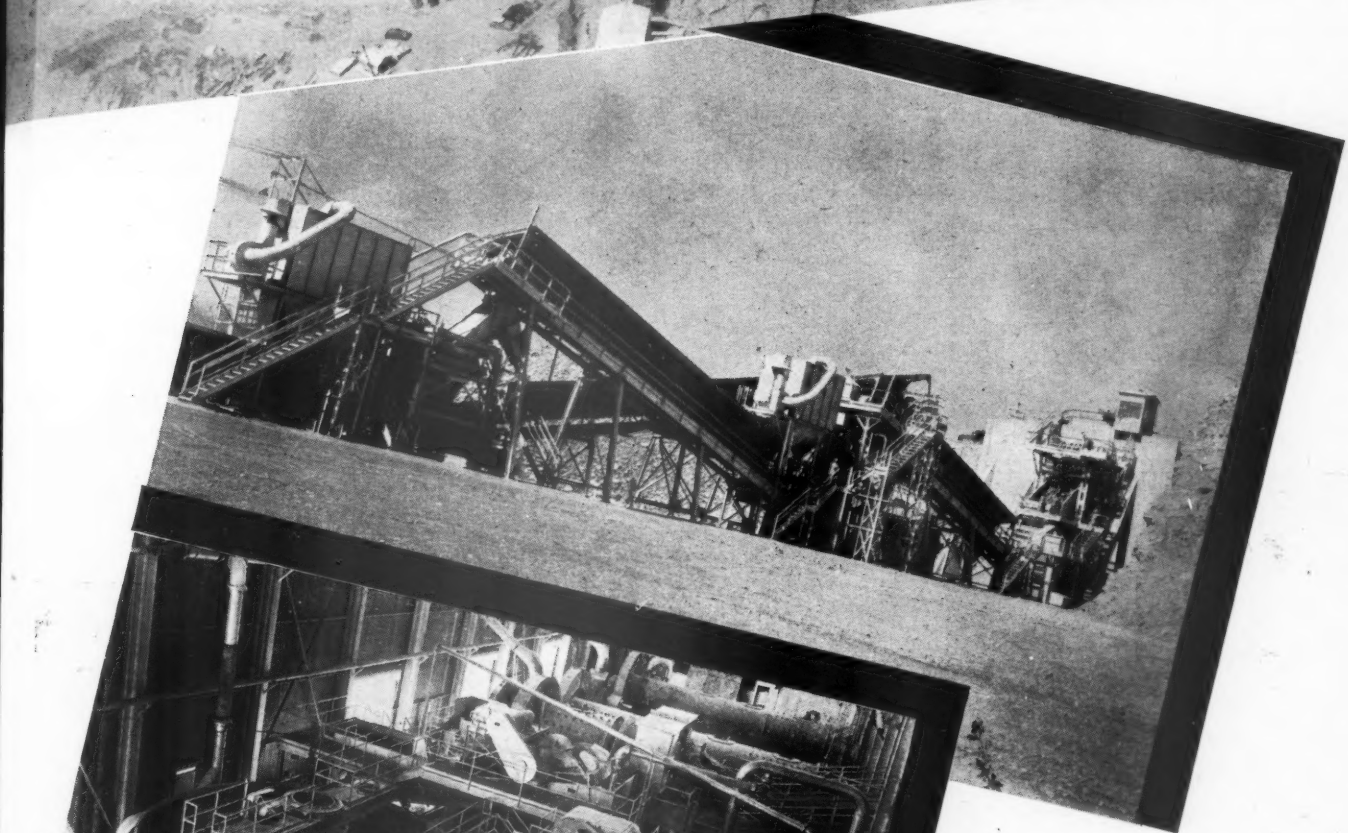
HISTORY OF EXPANSION

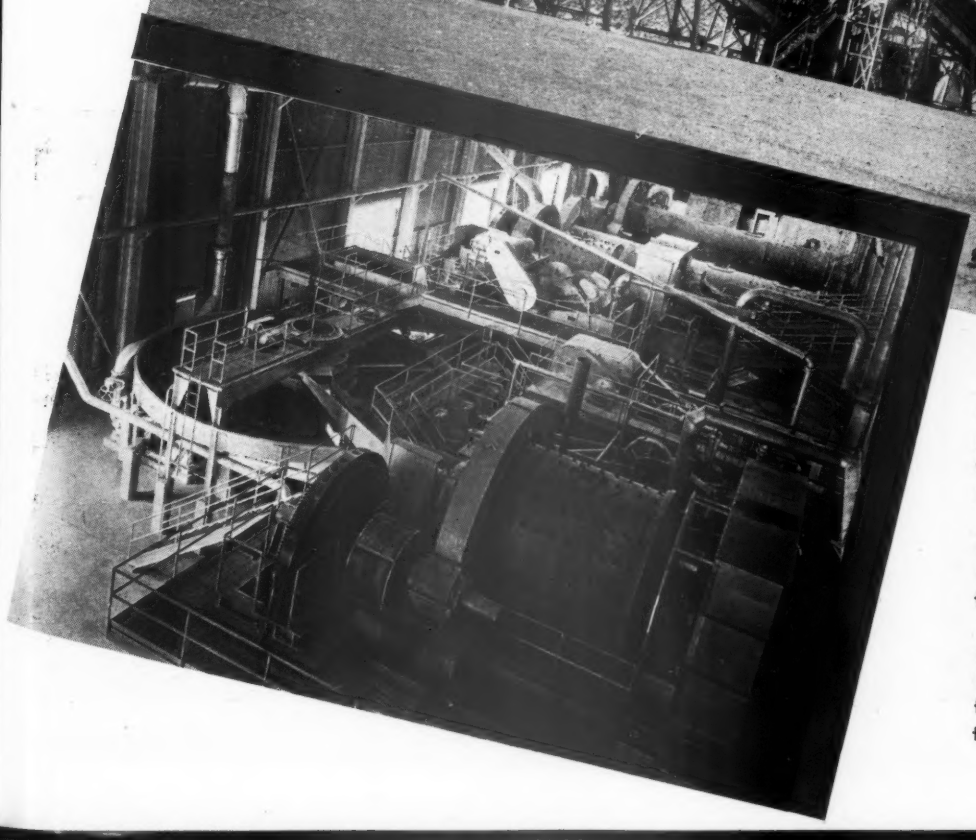
These two plants are the major items in a post-war improvement and expansion program by Ideal which is undoubtedly one of the greatest ever undertaken by any cement company, especially over so short a period. This program was conceived, carried out and completed, except for a few items, in 2½ years, and has increased the company's annual productive capacity by about 4½ million barrels. It has affected in varying degrees each of the eight plants owned and operated by Ideal when the war ended, all of which had suffered from the scarcity of equipment, supplies and manpower during the war.

The Ideal Cement Co. is now said to be fourth-largest manufacturer of portland cement in the United States, with 11 plants operating in Colorado, Utah, Montana, Nebraska, Arkansas, . Texas, Oklahoma and Alabama.

This ambitious program was also inspired to some extent by the heavy demand for cement in the South and especially in the Rocky Mountain area, which has grown rapidly in recent years both industrially and in population. Large construction projects under way or contemplated by the U. S. Bureau of Reclamation and other agencies also had to be supplied. It was decided, therefore, to build new wet-process plants at both Portland, Colorado, and Devil's Slide, Utah, alongside the old existing dry plants, so that the latter could remain in operation. This trebled the output at Portland and quadrupled that at Devil's Slide.

The first major step in the original and less pretentious program was the acquisition of the unused war-built aluminum ore sintering plant of the Aluminum Ore Co. at Mobile, Alabama, from the Reconstruction Finance Corporation. The plan was to transfer much of the equipment, including six of the eight 9½- by 250-ft. kilns, to other plants, among which were the two new ones at Portland and Devil's





• An aerial view of the Ideal Cement Company's Portland, Colo., plant, with slurry thickeners at the left. In the right foreground is the belt to the new and old plants.

• A general view at the Portland quarry, showing (right to left) the primary crusher, the secondary crusher and screening stations.

• The close-circuit wet raw-grinding system (foreground), with two ball mills and classifiers. The two finish-grinding mills are in the background.

• The 3-cu. yd. electric shovel loading a 15-ton truck in the Portland quarry.

Slide. Two of the kilns were to be left at Mobile and used for the production of cement and lime there. As this program progressed, however, the demand for cement in the entire Southern area increased rapidly and simultaneously new kilns and other machinery became more available. As a result, two new kilns and other items were ordered for each of the two new plants and six kilns were left in place at Mobile.

Existing Plants Following is a resumé of the improvements made at the various other Ideal plants in the approximate order of their completion.

Mobile, Alabama—Production of cement from one kiln began in August, 1946. Now there are six kilns in operation, four on cement, one on lime, and the other alternately on cement and lime. The installation of a new Duplex clay wash mill was completed in May, 1948, and four American Blower kiln draft fans have since been added. (See PIT AND QUARRY, July, 1947, pp. 90-95, for a complete description.)

Superior, Nebraska—No increase in capacity was made, but in 1947 two Babcock & Wilcox direct-firing coal mills were installed from the Mobile plant as an addition to the gas- and oil-burning facilities already in place. Now, if desired, each of the three kilns can be fired simultaneously with a different fuel.

Okay, Arkansas—One of the Mobile kilns and a cooler were installed, increasing the plant capacity about 450,000 bbls. annually. An American Blower kiln draft fan was recently added.

Houston, Texas—One kiln and cooler and six all-steel slurry tanks were transferred from the Mobile plant. New raw and finish grinding mills, and a Sturtevant separator were installed. New raw-materials-handling facilities were also built. The plant capacity was increased about 450,000 bbls. annually.

Ada, Oklahoma—At this plant a finish mill separator and new slurry tanks were installed to make possible full utilization of the existing kiln capacity. The increase in productive capacity is about 200,000 bbls. annually.

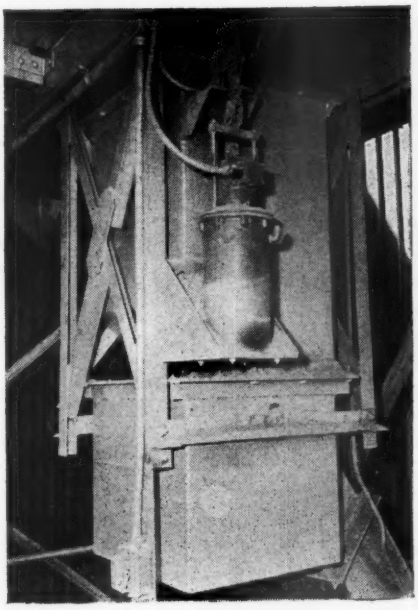
Trident, Montana—The original plan was to install additional grinding equipment only, but a more ambitious plan was recently announced which will include the installation of a kiln, a coal mill, a rock drier, four new ball mills and two 14-ft. air separators. This program is expected to be completed about March 1, 1949. The increase in production will be about 400,000 bbls. annually. There is also a possibility that a new plant may later be built there.

Boettcher, Colorado—Several improvements are being installed or are in the process of engineering at this plant. An American Blower No. 16½ Sirocco mechanical draft fan having 315,000 c.f.m. capacity will be installed in the stack breeching, as well as a Leeds & Northrup automatic draft controller on the fan damper, to improve kiln draft condition. Improvements are being made on the existing Cottrell dust collector, and weighing feeders are being installed on the finish mill circuits to handle clinker, limestone and gypsum. Experimental installation of air agitation equipment on kiln feed is under way.

(See PIT AND QUARRY, July, 1948, pp. 94-97, for a complete story on the progress made on all these plants up to that time.)

GENERAL FEATURES

The two new plants are basically identical in design, both as to layout and equipment, a fact which made it possible to use many of the same drawings for both plants and which



• Left: The 36- by 60-in. single-roll primary crusher, with the chain feeder and the truck hopper above

• Right: The sampler under the final stone belt conveyor.

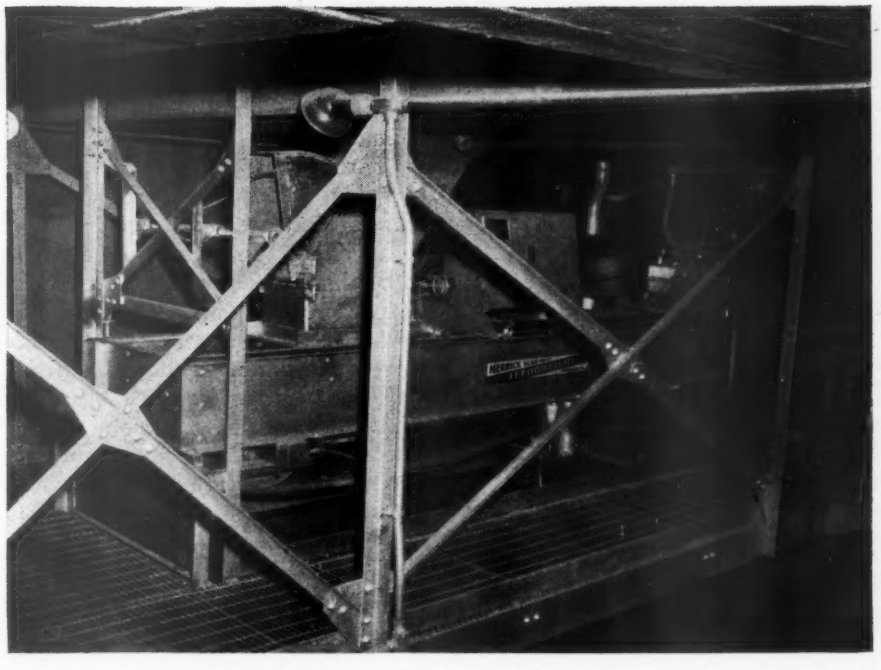
resulted in big savings in both engineering and purchasing costs. Both are wet-process plants using closed circuit wet grinding, the only Ideal plants so equipped. Each has a rated capacity of 4400 bbl. daily. Because of differences in topography at the two locations, their basic layout is exactly opposite, the Devil's Slide buildings being in the shape of an L and those of the Portland plant are a reversed L, the short leg in both cases being the long covered storage area with the adjacent raw- and clinker-grinding buildings. The kilns in both plants form the perpendicular long legs. The thickeners and substations fill in most of the open area between the two legs.

For economic reasons the Portland plant uses natural gas for fuel, while pulverized coal is used at Devil's Slide. Because the Devil's Slide stone is harder to grind, the raw mills there are longer and have larger motors than at Portland. The Portland stone has slower settling characteristics, so the thickeners are larger in diameter than those at Devil's Slide. New cement storage silos and a packhouse were built at Devil's Slide, while at Portland those at the old plant now serve the new plant as well. There are a few other minor differences between the two plants. Some of these are due to the fact that, although both plants are at an elevation of about 5200 ft., the winters at Devil's Slide are much longer and colder than those at Portland.

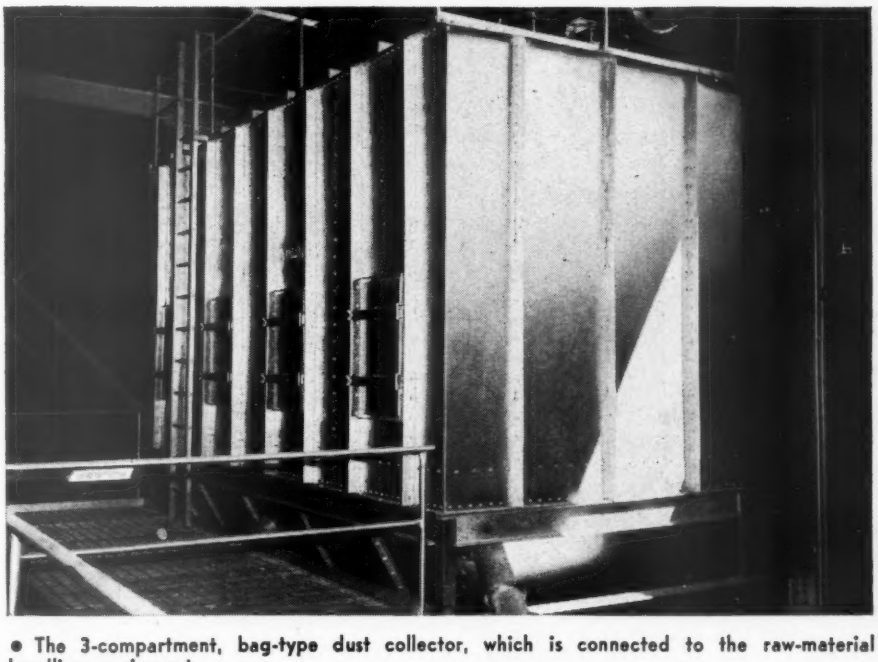
A feature of both plants is the simplicity of the flow sheet and the compactness of the equipment, together with unusual flexibility throughout. There is ample working space everywhere and room for future expansion, and some of the buildings are oversize for this reason. There is space for a third kiln and the necessary grinding equipment, slurry tanks, etc. Concrete is used wherever possible, and all mill buildings are of concrete and steel construction. Mahon steel deck roofing and siding is used except where concrete walls are required. Monovent ventilators are used and mercury vapor lights provide the nearest possible approach to daylight inside the buildings. As a safety feature a few incandescent bulbs are spotted at strategic points as they light more quickly after a power failure. These are also tied in to the main substation on an emergency circuit should the power failure occur in the unit substation serving that particular area. Incandescent floodlights are used outdoors.

Closed circuit wet grinding was adopted in both plants in order to obtain uniform blending of the raw materials, and the ample capacities of the thickeners and the slurry tanks make possible a quick switch from one type of cement to another. The flexibility of this system makes it possible to produce all the basic types of portland cement, as well as masonry cement.

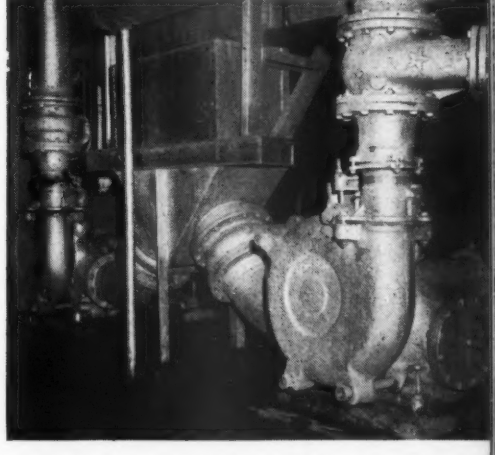
The mill room is unusual in both plants in that all equipment in it is so arranged that a single overhead crane, a Northern 10-ton unit operating on a 70-ft. span, can traverse a distance of 380 ft. without interference. This crane does all the lifting and handling in the entire area, from the grinding ball storage at



• The conveying and weighing feeder which supplies limestone to the raw-grinding mills.



• The 3-compartment, bag-type dust collector, which is connected to the raw-material handling equipment.



• The two pumps which feed slurry from the bowl classifier to the thickener.

one end to the kiln hoods at the other, except for entire mills and mill motors. A novel feature is that instead of handling grinding balls in buckets in the usual manner, a 42-in. Dings lifting magnet is used to load the balls into a truck which hauls them to the mills. There the magnet transfers the balls into the mills. This crane is also used for lifting brick for kiln lining up to the firing floor.

This system was a headache to design but has proved its value in operation. The advantages are said to outweigh the slight disadvantage and expense of having extra long screw conveyors from the mills to the elevators at the wall, closing this circuit with air separators.

Another unusual feature is that these plants are devoid of the usual basements, sub-basements, etc. The only equipment units extending below floor level are the tail pulleys of the bucket elevators and these are accessible. Sump pumps keep the elevator pits clean and the raw mill is similarly equipped with sumps and pumps.

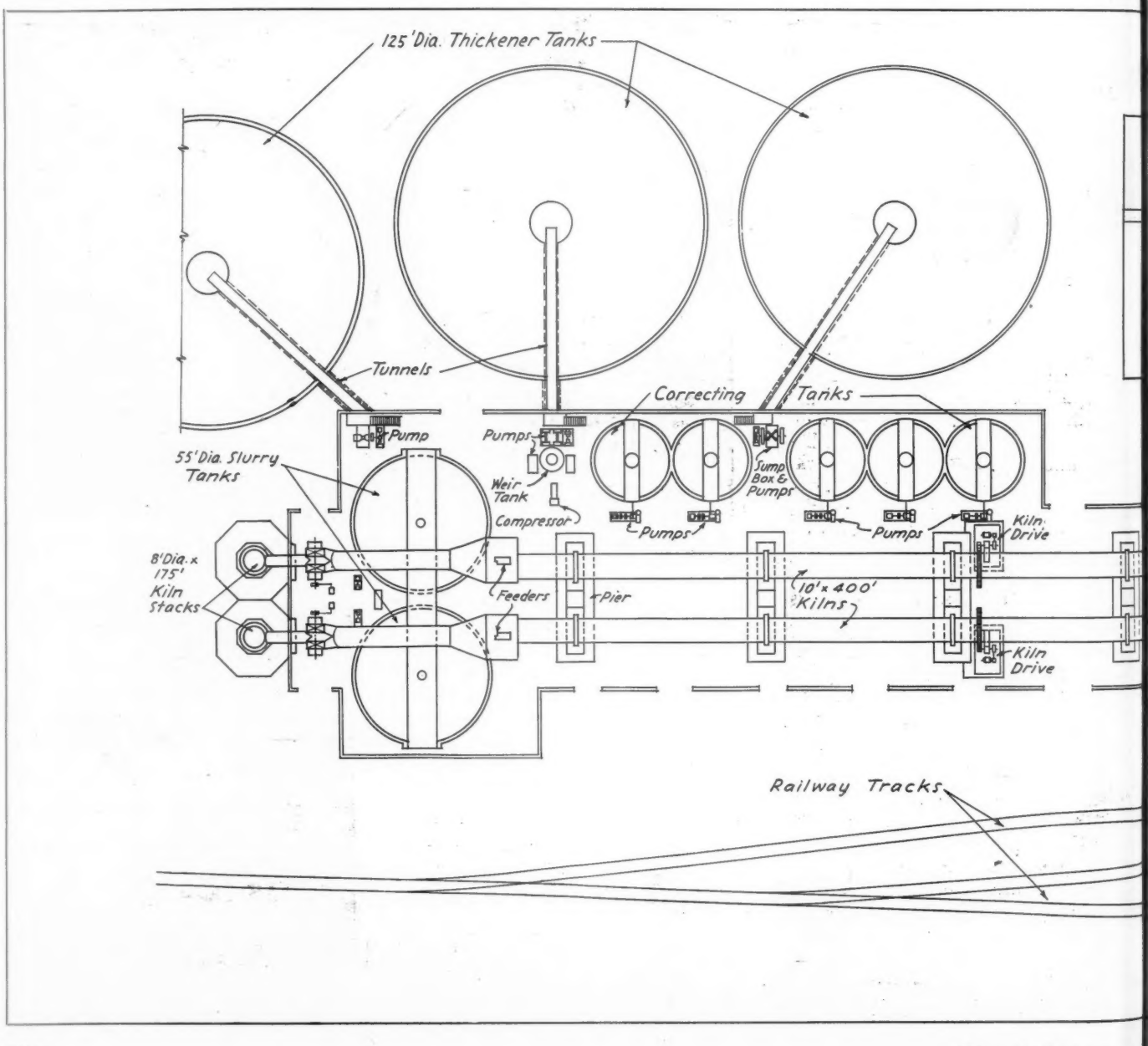
Throughout both plants every possible precaution is taken to insure against accidents and delays in production. Important pumps and other handling units are provided in duplicate. Automatic electric interlock systems are used in the crushing, raw-grinding and finish-grinding departments, and all electrical controls in the substations are operated by pushbuttons on a centralized control panel for each department or at each individual motor. An Alemite central automatic lubricating system serves the kiln and mill gears and a Trabon system is used on the roll crusher.

In either plant one type of cement can be made in both kilns while a second type is being prepared in the thickeners. The changeover, which takes about 10 days, is made by first emptying one thickener, then drawing from the other two while the first one is being filled with the new mix.

PORTLAND PLANT

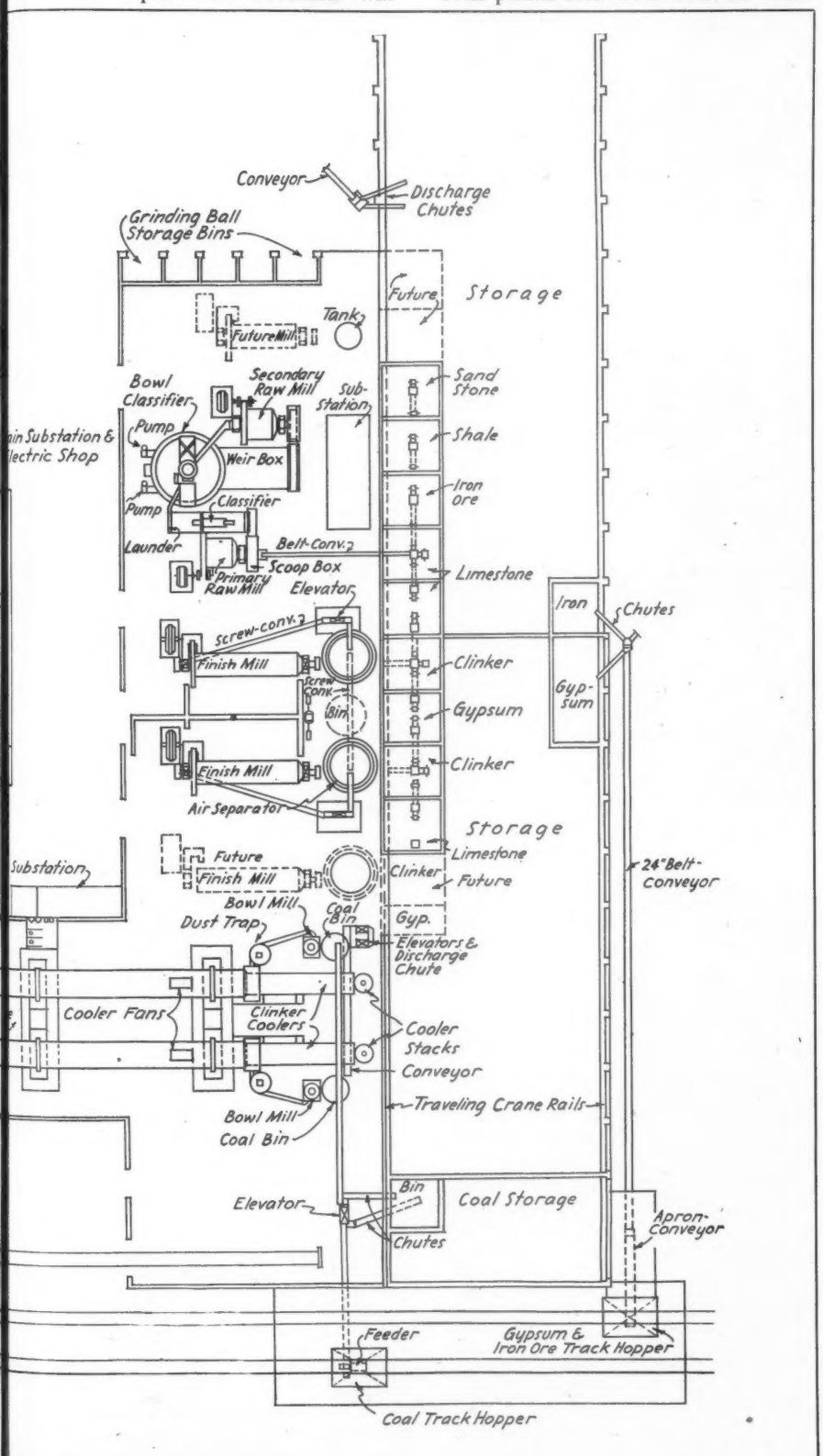
Because of the similarity between the two plants the following general and detailed description of the Portland plant holds for both, except where noted. Beginning in the quarry at Portland it is interesting to note that there has been no actual change in quarrying methods but

• A plan drawing of the Devil's Slide, Utah, plant of the Ideal Cement Company. The layout of the Portland, Colo., plant is nearly identical, except that it is in reverse.



that new equipment has replaced the old and that a new crushing and screening plant serves both cement plants. The use of a roll primary crusher is unusual but was necessary because of the slabby nature of the stone. Two dust collectors keep this plant as clean as it is possible for a crushing plant to be.

History The original dry process plant at Portland was built in 1899 and has been improved and enlarged to its present capacity of 2600 bbls. daily. It is located on the south bank of the Arkansas River at the company-owned town of Portland, which is located 25 mi. east of the famous Royal Gorge, 50 miles south of Pike's Peak, and 25 mi. west of Pueblo. The cement storage silos and packhouse serve both plants and were built in 1923.



The new crushing plant, which also serves both cement plants, was completed in September, 1947. The raw mills in the new plant were in operation June 4, 1948; the kilns on June 19; and the finish-grinding mills on July 16, 1948.

Quarry The quarry at Portland is across the Arkansas River from the two plants and about one mile away in a straight line. Formerly the stone was hauled in side-dump cars over a trestle which spanned the river, the main line of the Denver & Rio Grande Western R. R. Co., a branch line of the A. T. & S. F. Ry. Co., and U. S. Highway No. 50. Steam shovels were used for loading; now electric shovels are used, with trucks hauling the stone to the new crushing plant at the quarry, and a belt conveyor system carrying the prepared stone across the same trestle to the cement plants. This system has a capacity of 300 t.p.h. of ¾-in. stone which is enough, in a week of five 8-hr. days, to keep both cement plants supplied.

The limestone at Portland varies considerably in analysis and is quarried selectively on two levels or benches to approximate the desired blend. Actually both stones are handled separately throughout and the blending is done at the raw mills. The top level is low-lime rock or shale which varies from 57 to 60 percent $CaCO_3$; the lower level of high-lime rock varies from 80 to 82 percent $CaCO^8$. Sandstone is also quarried at the same location. The 15 to 20 ft. of clay and earth overburden is removed by shovels.

Drilling and blasting form somewhat of a problem because of the thinly laminated and broken formation, but this condition makes necessary little secondary drilling and blasting. Churn drills with 5½-in. bits are used. The low-lime rock is loaded by a P & H No. 1400 electric shovel with a 4-cu. yd. dipper, and the high-lime rock by a Marion No. 492 electric shovel with a 3-cu. yd. dipper. Both are crawler-mounted and have Ward-Leonard control systems. Hauling to the crushing plant is done by four Euclid 15-ton end-dump trucks, one usually being held in reserve. All are powered by 150-hp. Cummins diesel engines. A Trackson Traxcavator is used to clean up in the quarry.

Crushing Plant The trucks discharge the stone from the second level of the quarry into a hopper from which a Ross No. 10 chain feeder controls the flow

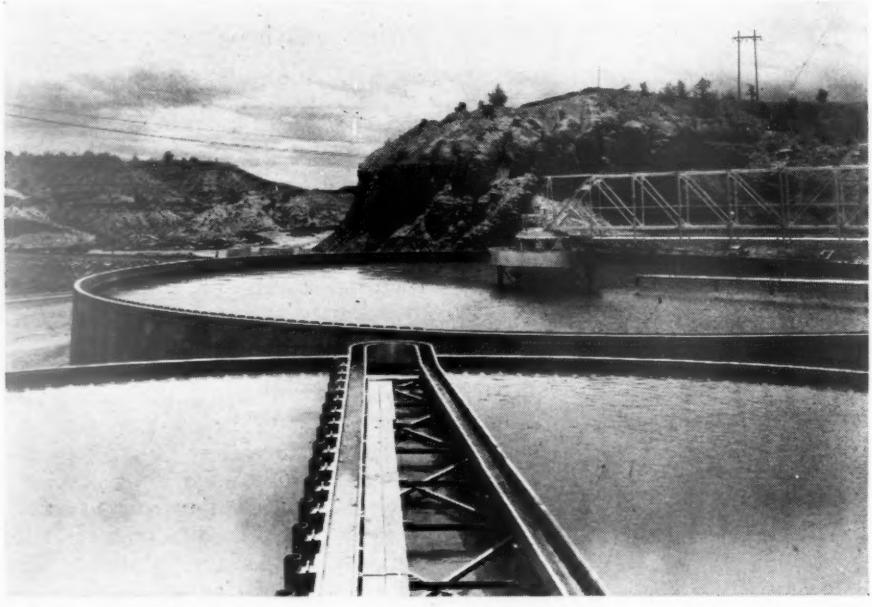
into the 36- by 60-in. Pennsylvania single-roll primary crusher. This reduces the stone to 4- by 8-in. minus and discharges it on a 36-in. by 97-ft. centers inclined belt conveyor to the Pennsylvania No. 15-50 Impactor used for secondary reduction.

This conveyor has a Dings magnetic head pulley which removes iron and a Dings iron detector which automatically stops the conveyor when pieces of iron too large for the pulley are encountered. Stephens-Adamson impact idlers break the shock of the stone falling on the conveyor belt at the primary crusher discharge point.

The minus 1-in. product of the secondary crusher is carried on a 36-in. by 90-ft. centers inclined belt conveyor to the 6- by 12-ft. Allis-Chalmers 2-deck vibrating scalping screen. This has 1- by 6-in. and ¾- by 5-in. slotted wire cloth on its top and bottom decks, respectively. The top deck serves only to increase the efficiency of the bottom deck and the material passing over both is returned on a 24-in. by 123-ft. inclined belt conveyor onto the conveyor to the secondary crusher. The mill-size rock—minus ¾-in.—drops from the screen onto the 30-in. by 1530-ft. belt conveyor across the river to the cement plants.

Two bag-type dust collectors are used at the crushing plant, chiefly for the comfort and safety of the workers. A Norblo No. 200 collector is located at the secondary crusher and a No. 240 unit is at the scalping screen. These discharge the dust onto the belt conveyors leaving those points.

These conveyors and those at the new mill have Jeffrey idlers and pulleys, and Hewitt belting. The primary crusher is driven by a 200-hp. motor through V-belts. The Impactor is driven by 400-hp., 720-r.p.m. motor direct connected through a Falk flexible coupling. The Ross feeder is driven by a 10-hp. motor and the long belt conveyor by a 50-hp. motor.



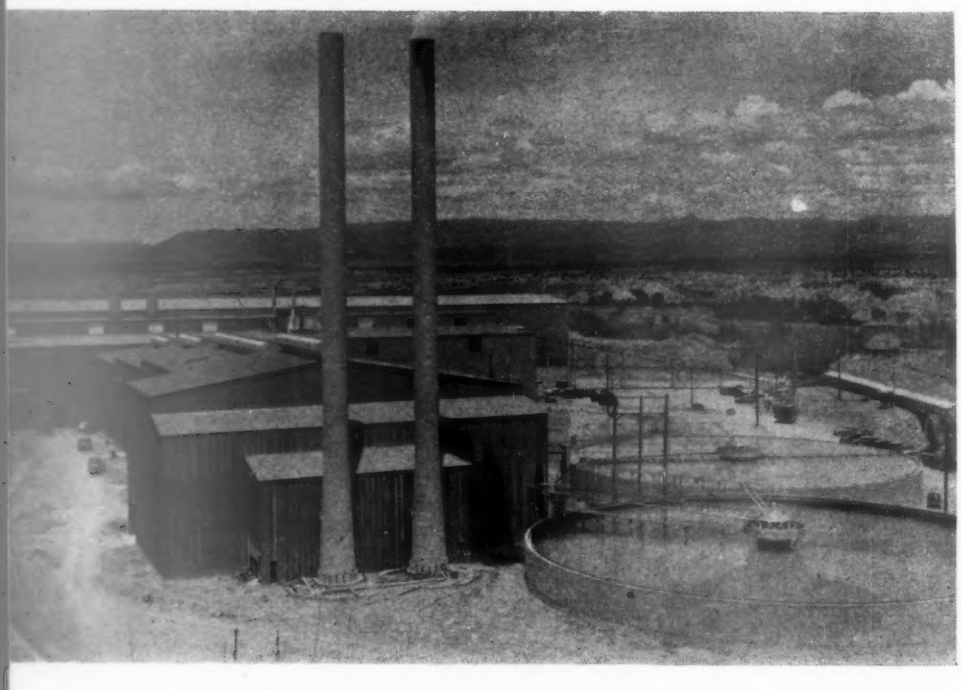
• Two of the three 160-ft. diameter center pier thickeners. The one in the foreground has a rotating monitor distributor arm.

Raw Material Storage At the plant end of the main conveyor the stone can be discharged either on a 30-in. by 354-ft. belt conveyor to the old plant or on a 30-in. by 249-ft. inclined belt conveyor to the new plant.

The latter discharges the stone directly into the 220- by 78-ft. raw-material-storage section of the 460- by 78-ft. covered storage building which has concrete side-walls 24 ft. high. This building has a capacity of 21,000 tons of raw materials and 110,000 bbls. of clinker, as well as smaller quantities of shale, iron ore and gypsum.

A 12½-ton P & H traveling crane with an 80-ft. span and handling a 4-cu. yd. Blaw-Knox clamshell bucket travels the entire length of the storage building. It distributes raw materials and clinker in storage and rehandles them to feed bins for their grinding departments. The high- and low-lime (shale) stones, iron ore and sandstone are stored separately and are rehandled to individual raw mill feed bins. Gypsum and clinker are stored at the finish end of the building.

Gypsum and Iron Ore The gypsum and iron ore can be received either by rail or truck and are discharged into a 15- by 20-ft. hopper. A Link-Belt 42-in. by 32-ft. inclined apron feeder discharges the material into the 24- by 50-in. Pennsylvania Armorweld single-roll crusher, which is driven by a 60-hp. motor. The minus 1-in. product, either gypsum or iron ore, is carried on a 24-in. by 224-ft. belt conveyor to the storage building. The gypsum and ore are chuted into 860- and 700-ton bins, respectively, for transfer by the crane into the mill-feed bins.



• Another view of the Portland plant, showing thickeners and stacks in the foreground. The raw-material conveyors are seen in the right background.

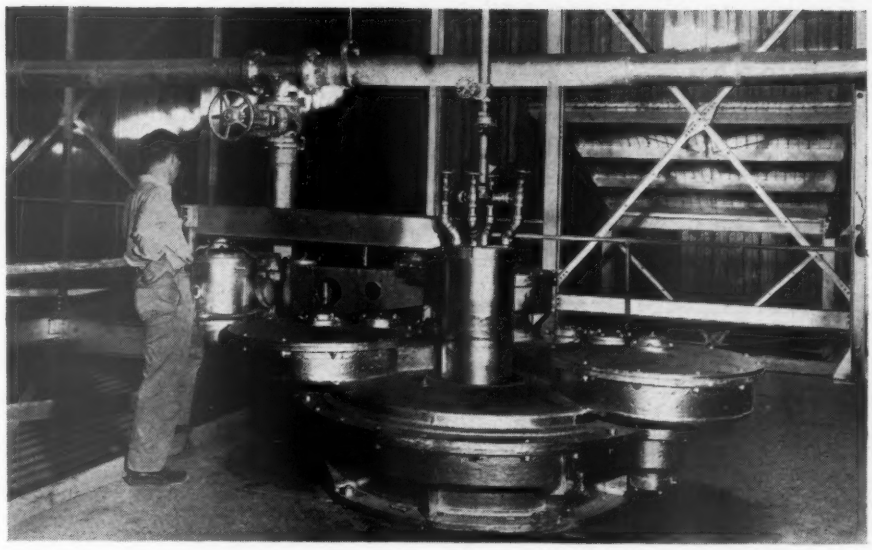
Raw Material Grinding The raw materials are fed from these bins to the two-stage closed-circuit wet raw-grinding system by five 24-in. by 13-ft. Merrick recording Feedoweights, two for high-lime rock, and one each for shale, sandstone and iron ore. Each is driven by a 2-hp. motor with variable speed control. The high-lime rock is discharged directly, and the other materials by means of a cross conveyor belt, on an 18-in. by 60-ft. inclined belt conveyor. This feeds them into the combination drum and 12-ft. diameter double-scoop feeder of the preliminary ball mill. Water is fed into the mills at the same point. A Norblo No. 312A 3-compartment bag-type collector collects dust at the rock storage belt, the collecting belt and the Feedoweights.

The preliminary and secondary ball mills are both 9-ft. 6-in. by 10-ft. 2-in. Traylor machines and are driven at the rate of 18 r.p.m. by 500-hp. synchronous motors direct connected through flexible couplings. Both mills have tubular screens attached to their discharge ends, with openings slightly smaller than the mill discharge screen openings. These remove grinding balls, tramp iron, etc., from the mill stream. The preliminary mill carries a 41-ton grinding charge consisting of 41,000 lbs. of 3-in., 25,000 lbs. of 2½-in., and 16,000 lbs. of 2-in. balls. Sheffield and Colorado Fuel and Iron Co. forged steel grinding balls are used in both mills.

The slurry is discharged from the preliminary mill into a discharge box from which it flows through a launder into a Dorroco 8- by 31½-ft. rake classifier. This is driven by a 15-hp. motor through a Reeves variable-speed drive. The coarse material (plus 48-mesh) is returned from this classifier into the preliminary mill through a launder which is also used to introduce the makeup water. The circulating load is about 250 percent.

The overflow from this classifier goes into the Dorrco 16- by 42- by 27-ft. bowl-rake classifier which is in closed circuit with the secondary ball mill. The coarse material settled out in the bowl is raked into a Colorado Iron Works 36-in.-dia. by 17-ft. 4-in. Akins classifier, placed transversely, which serves to discharge it into the scoop feeder of the secondary mill. This system has about a 200 percent circulating load and makes a 90-91 percent through 100-mesh product.

This mill is loaded with 43 tons of forged steel grinding balls, consisting of 43,000 lbs. of 2 in., 26,000 lbs. of 1½-in., and 17,000 lbs. of 1¼-in. balls. It has ¾-in. discharge grates and its product goes back into the bowl. The overflow of the bowl-rake classifier is finished slurry and it goes to an 8-in. Wilfley pump which feeds to the thickeners. A second pump serves as a stand-by. An automatic interlock system shuts down the entire raw-grinding system if this pump should stop.



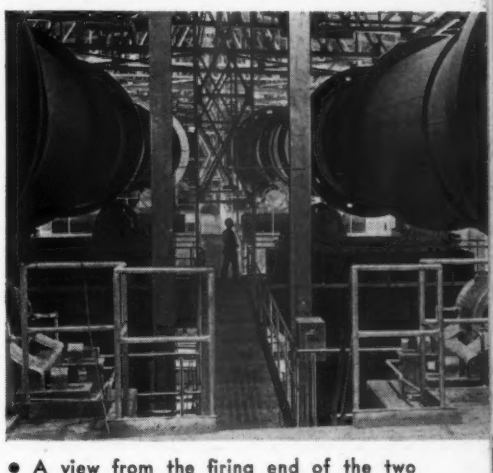
• A closeup of the drive head on one of the slurry mixing tanks.

The rakes and bowl of the secondary classifier are driven through Reeves variable-speed reducers by 20- and 7½-hp. motors, respectively. This system is producing 235 bbls. per hr. of slurry ground to a fineness of 90 to 91 percent through 200 mesh.

Slurry Thickening The slurry goes to a distributor tank feeding the three 160-ft.-dia. Dorr center pier torque thickeners which have a capacity of 1½ million gallons each. The thickeners have 10-ft.-high concrete sidewalls which are entirely above ground level. Their torque arms are driven at the rate of 1 r.p.m. in 37 min. by 3-hp. motors. The system of thickeners and correcting tanks is largely responsible for the accuracy and flexibility of mixing and blending in this plant.

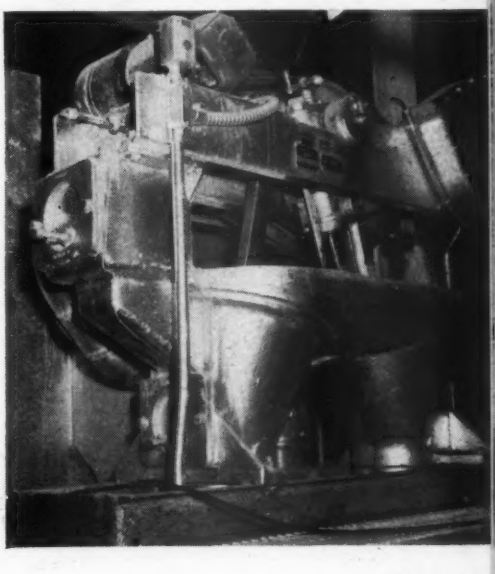
The slurry flows at equal rates into the thickeners through three weirs in the distributor tank. Two of the thickeners are fed through ten equi-distant points in a radial weir box. The third has a new system consisting of monitor distributors rotating around the tank, and is known as the Adams launder. If this proves to be the best system, it will be installed on the other two thickeners. The mix used for standard portland cement settles in about 48 hrs., so only two thickeners are usually required.

The three thickeners could be used in series if desired. As they are now used any two can be used on one type of cement, while an-



• A view from the firing end of the two 10-ft. diameter by 400-ft. rotary kilns in the Portland plant.

• A pump which is held in reserve to feed slurry to the kiln.



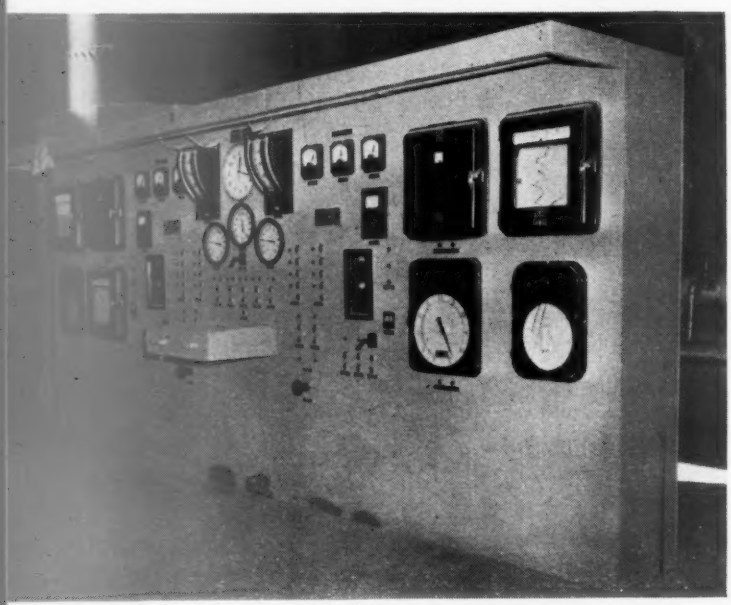
other type is either drawn or held in reserve. The output of any thickener can be pumped to any other thickener, back into the same thickener, into any of the five slurry mixing, or either of the two kiln-feed tanks.

Slurry Mixing The thickeners each deliver settled material through tunnels to a pair of 6-in. Dorr Duplex diaphragm pumps which feed it to a head box. A 5-in. Wilfley pump under this head box feeds the slurry mixing tanks. There are five concrete tanks, each 30 ft. in diameter and 33 ft. high and each with a capacity of 2000 bbls. They are equipped with Dorr mechanical and air-agitators. Each tank is served by an individual 8-in. Wilfley pump. These pumps and their lines are so hooked up that slurry may be pumped from any mixing tank into any of the other mixing tanks or into either of the two kiln-feed tanks. They are driven by 75-hp. motors.

The two kiln feed tanks are also of concrete construction, 55 ft. in diameter and 24 ft. high, with a capacity of 5,000 bbls. each. These also have Dorr mechanical and air agitators. A Fuller rotary air compressor supplies air at 35 p.s.i. for agitation. Each tank has a 5-in. Wilfley pump, and the two pumps are so cross-connected that one can be used to feed from either tank, with the other as a standby. This delivers the slurry, which has a 40- to 45-percent water content, to the tanks of the two ferris wheel kiln feeders. The overflow from these tanks flows back into the feed tanks. A Dorrco 6VM diaphragm pump is in reserve for feeding each kiln. The rheostats controlling the motors of the ferris wheel feeders, as well as the standby pumps, are located on the firing floor.

Usually one of the five slurry mixing tanks will contain a special-high-lime slurry and another a low-lime slurry for sweetening the mix, both being ground in open circuit and requiring no mixing. Accurate blending is made possible by regular sampling at key points. Samplers of Ideal design but made by Stearns-Roger are located at the bowl overflow of the secondary raw mills to check the analysis of the raw slurry, and at each thickener.

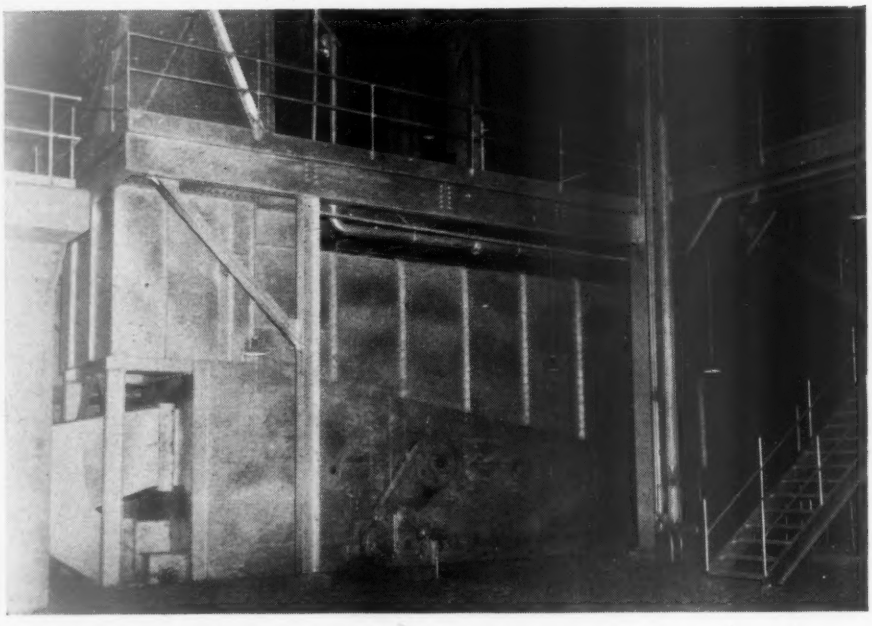
The adjustment of the mix in any tank is measured in depth in the tank. This depth on all seven tanks is indicated and recorded by means of Foxboro gauges which indicate on control panels located at the pump for each tank. These gauges also record over a 24-hr. period in a substation under the feed ends of the kilns. Together the gauges and recorders give a check on production, pump efficiencies, etc. The push-buttons and ammeters are also located on these panels.



• The control board mounting the instruments and controls for both kilns. On it are the usual draft and CO_2 gauges, temperature indicators, recorders, warning lights, switches, meters, etc.

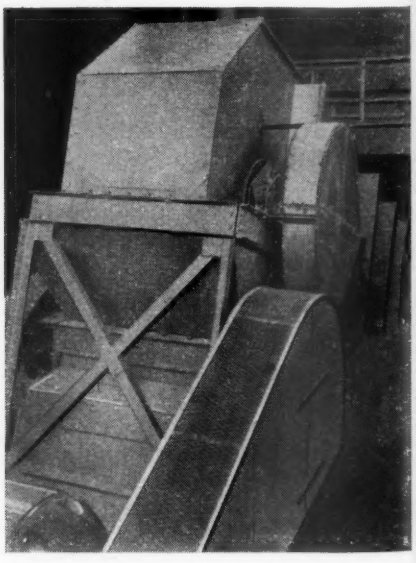
Water Supply About 3000 g.p.m. of the water used in the operation of the thickeners comes from the raw mills. The new water added to compensate for evaporation is pumped direct from the Arkansas River.

A 5000-g.p.m. Buffalo double-suction pump with a duplicate standby unit pumps the thickener overflow to the mill head tank. Any excess from this tank is pumped by a 1000-g.p.m. Buffalo pump to a concrete storage tank on the hill above the plant. A 500,000-gal. tank is used for process water and a 250,-



• One of the two grate clinker coolers, with the kiln hood above, left.

• The gypsum roll crusher, with apron feeder at the right.



000-gal. tank for domestic water.

A water softening and treating system provides water for the town of Portland and for some plant uses.

Burning and Cooling The two all-welded Traylor kilns are actually 10 ft. in dia. by 398 ft. long, but each has a 2-ft. Pyrasteel nose ring bolted to it. The shell is built of 2-, 1-, and ⅞-in. steel plate, has a pitch of ⅜ in. per foot, and is supported on six sets of rollers. Each is driven by a 4-speed, 125-hp., electric motor through a Falk gear reducer and V-belts. The motor speeds of 450, 600, 900 and 1200 r.p.m., respectively, give kiln speeds of ¼, ½, ¾ and 1 r.p.m.

Initially some experiments were made in lining these kilns in order to compare the merits of different types of lining; however, at present both are lined the same. Neither kiln is insulated at any point. The kilns, starting at the feed end, are unlined for 45 ft. 9 in.; then have 97 ft. 7 in. of 4½-in. poured concrete lining consisting of 1 part portland cement and 3 parts crushed firebrick. Next is 147 ft. 8 in. of 40 percent alumina brick, 100 ft. of 70 percent alumina brick and finally 10 ft. of 40 percent alumina brick at the firing end. Beginning at the 15-ft. point from the feed end of No. 2 kiln there is a suspended chain curtain extending 110 ft. into the kiln. Beginning at the 15-ft. point from the feed end of No. 1 kiln there is a suspended chain section curtain extending 56 ft. into the kiln.

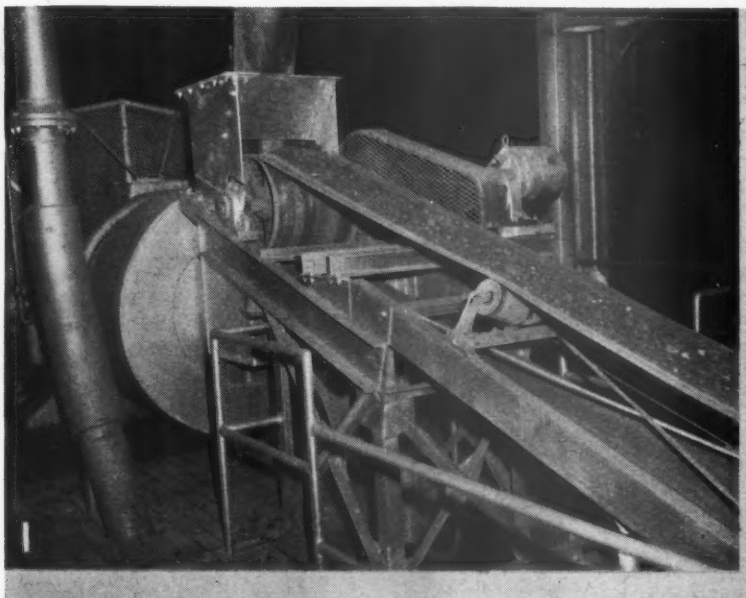
Both kilns are fired with natural gas which is received at a pressure of 92 p.s.i. and reduced to approximately 20 p.s.i. at the burner tip. Induced draft for the kilns is created by individual No. 21 American Blower 100,000-c.f.m. fans driven through V-belts by 100-hp. 4-speed motors with the same speed ratings as the kiln motors. Draft in each

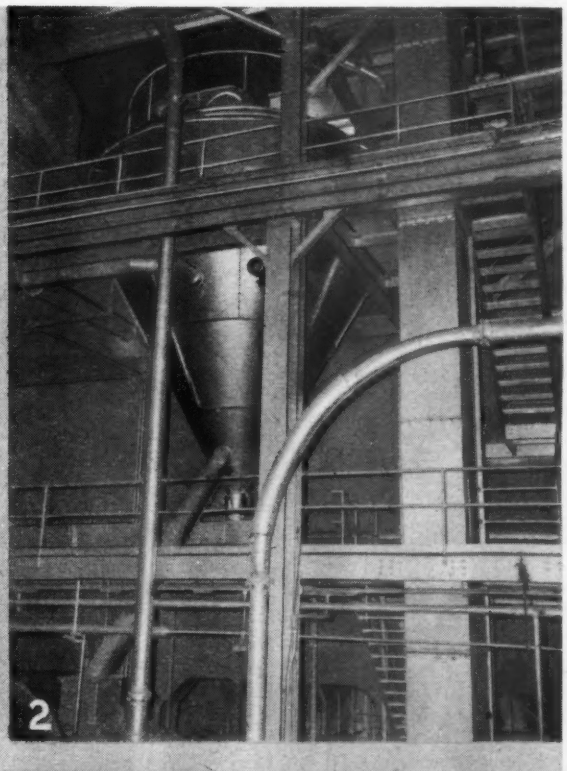
1. The conveyor feeding the proportioned clinker and gypsum to one of the finish mills.

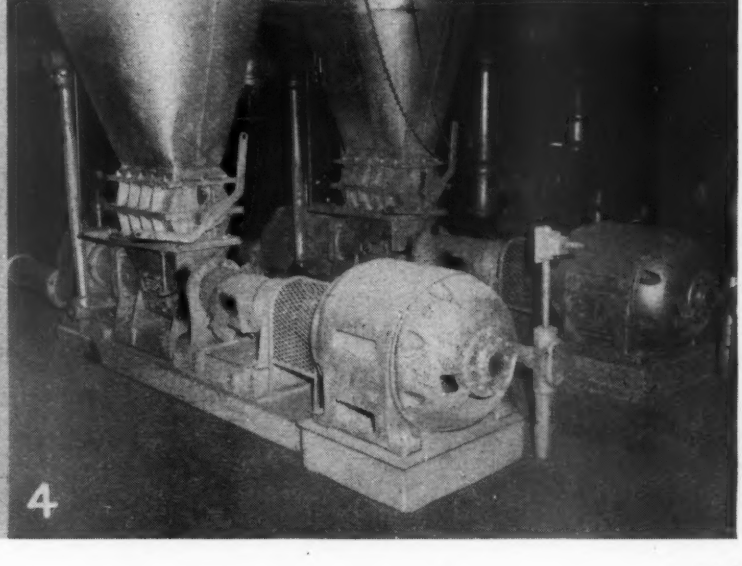
2. One of the two 16-ft. separators connected to the finish mills.

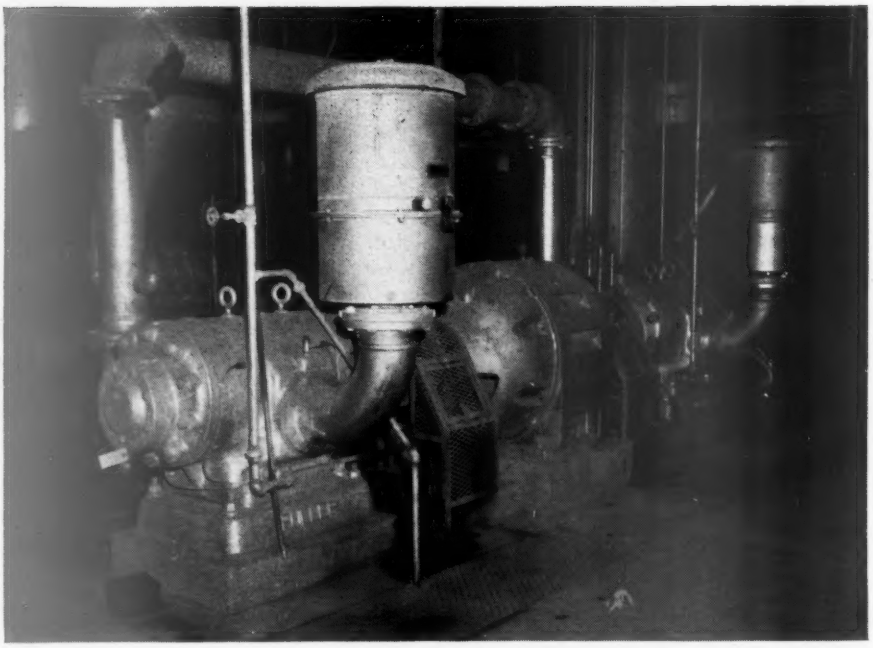
3. A magnet with a load of grinding balls from the bin.

4. The two 7-in. pumps which feed finished cement to the silos.









• The dual rotary compressor which supplies air for the cement pumps in the finish-grinding department at the Portland plant.

kiln is controlled automatically by a Leeds-Northrup system consisting of a Micromax draft controller, indicating instruments, and motor-driven louvre dampers. Each kiln has its individual 8- by 175-ft. steel stack which is unlined.

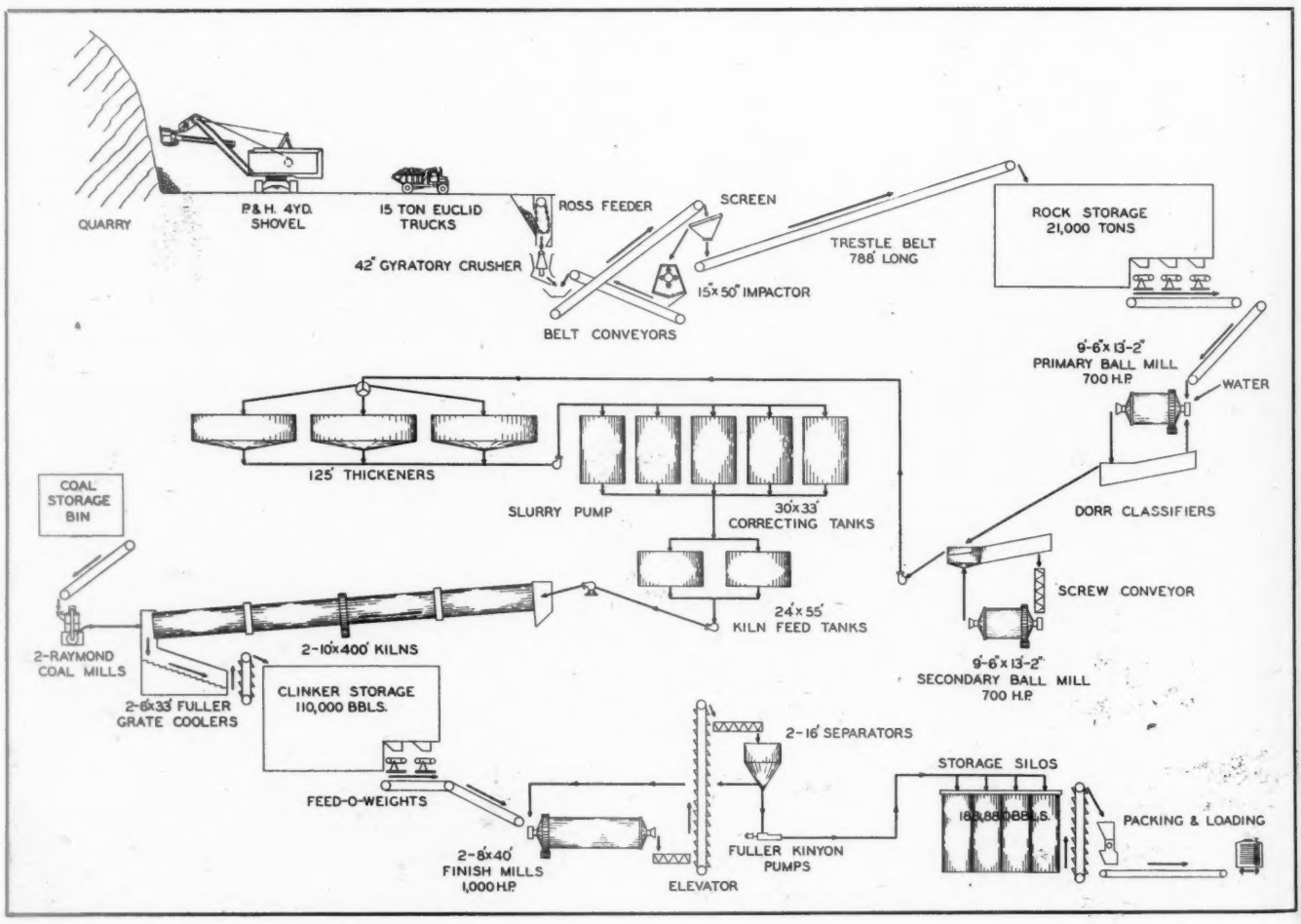
Both kilns are completely instrumented and are controlled from a master board on which are the various switches, meters, gauges, etc.

The clinker is discharged from each kiln into a 6- by 33-ft. Fuller inclined-grate cooler. This has automatic bed speed control and a Sturtevant blower which forces air up through the clinker bed to cool it. This air is used as secondary air for the kiln. A Foxboro thermocouple at the feed end of the cooler automatically slows down or speeds up the grate motor to keep the discharge temperature at 125 deg. F.

Clinker Storage A Kensington manganese steel drag chain conveyor carries the clinker from both coolers to one of the two Link-Belt bucket elevators. Either one of these is used to discharge clinker to a second Kensington drag chain which feeds clinker direct to the mill feed bins, or discharges clinker direct into the storage where it is rehandled and later fed to the mill feed bin by the storage area overhead crane. The other elevator is stand-by.

Finish Grinding The grinding of the finished cement is done by two identical systems each consisting of an 8- by 40-ft. Traylor 3-compartment mill in closed circuit with a 16-ft. Sturtevant mechanical air separator. These systems carry a 200-percent circulating load and have a combined capacity of 280 bbls. per hr. when grinding standard portland cement

Flow sheet of operations at the new Devil's Slide, Utah, plant.



to a surface area of 1675.

It has been mentioned that the clinker can be fed to the mills direct from the coolers via the mill feed bins, and this is present practice. The other ingredients—gypsum, and raw limestone in the case of masonry cement—are fed from mill feed bins. There is a clinker bin for each mill with a joint gypsum bin between them. The limestone bin is off to one side. The proportioning of these materials is done by five 24-in. by 13-ft. Merrick Feedoweights identical to those used in the raw department. There are two under the gypsum bin, one under each clinker bin, and one under each of the two limestone bins. One gypsum and one clinker Feedoweight serve each mill, via 18-in. by 37-ft. 6-in. inclined belt conveyors. When masonry cement is being made in either mill the limestone Feedoweight also discharges on the conveyor to that mill.

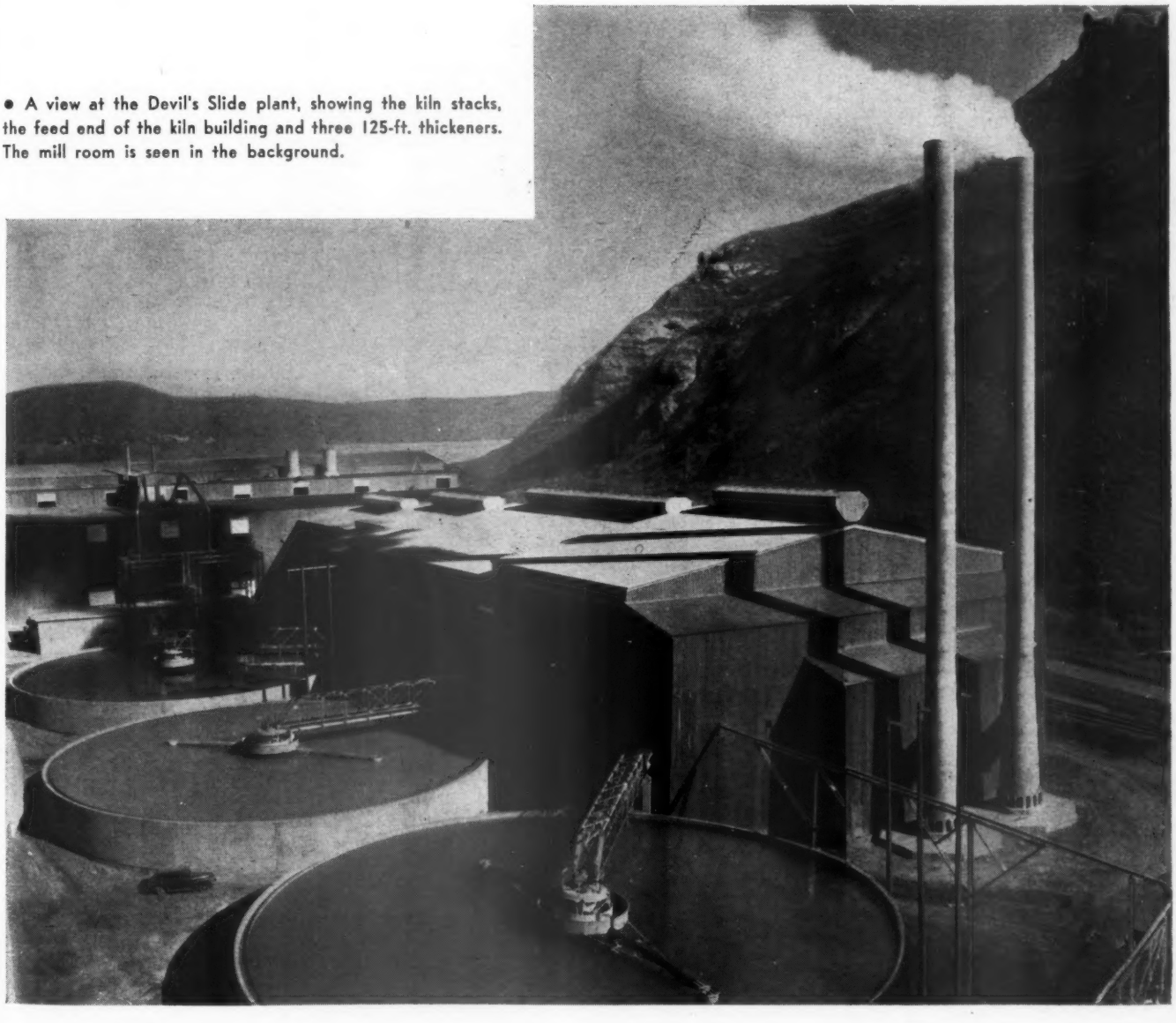
Each mill carries an 81-ton charge of Sheffield forged steel grinding balls with 4-in. and 3½-in., 1¼-in., and ⅞-in. in the three compartments, respectively. The grate openings at the discharge ends of the compartments are, respectively, ⅝-, ½-, and ⅜-in. Each mill is driven at the rate of 19 r.p.m. by a 1000-hp. synchronous motor and its separator by a 100-hp. motor.

The product of the third compartment of each mill is carried by a 24-in. by 60-ft. screw conveyor at floor level diagonally back past the feed end to a bucket elevator at the bin wall. This elevator feeds it via a short screw into the separator. Rejects are returned by gravity into the first compartment of the mill. When special cement or masonry cement is being made, admixtures—Darex, vinsol resin, tallow, etc.—are added at each mill from mixing tanks. Two Norblo No. 468A 6-compartment dust collectors are connected to the finish mills, elevators and separators.

Cement Storage and Packing

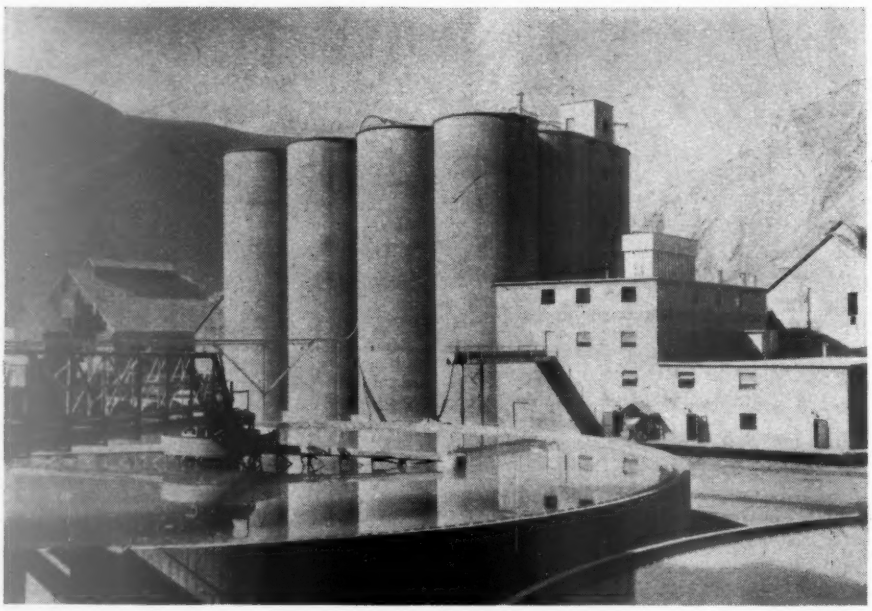
The finished cement from the two separators is carried by a 16-in. right- and left-hand screw conveyor into bins serving two 7-in. Type H2 Fuller-Kinyon pumps, each driven by a 125-hp. motor. Air is supplied by a C200-200 Fuller Duplex 55 rotary compressor driven by a 250-hp. synchronous motor. One of these pumps serves as stand-by. These pumps deliver the finished cement through a 1100-ft. pipeline to the 12-silo storage at the old mill which has a capacity of 170,400 bbls.

The adjoining packhouse is arranged to ship sacked cement by rail or truck and bulk cement by rail. There are four 4-spout St. Regis packers. On one of these a Link-Belt Roto-Lift vertical screw conveyor is being installed to feed the spillage back into the packer feed bin. Similar installations are planned for the other three packers.

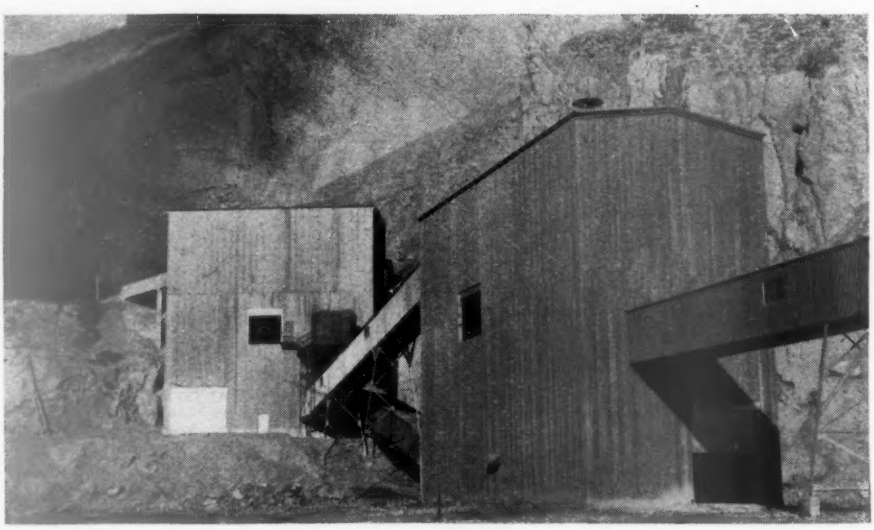


• A view at the Devil's Slide plant, showing the kiln stacks, the feed end of the kiln building and three 125-ft. thickeners. The mill room is seen in the background.

• The quarry face at Devil's Slide. In the lower right-hand corner is the primary crushing building.



• The storage silos and packhouse at Devil's Slide, with 125-ft. thickeners in the foreground.



• In the foreground is the secondary crushing building; in the background, the primary crushing building.

Electric Power The electric power used in the new plant is purchased from the local utility to supplement the excess from Plant No. 1, which has its own steam-generating plant. The 66,000-v. current is stepped down to 4160 v. by two 3750-5000-kva. transformers.

The 4160-v. current is distributed to five substations at strategic points, all serving the equipment in the mill and kiln building. The mill motors are operated on 4160-v., whereas all other motors are 440-v. The 4160-v. current is connected to the old power plant, where it is reduced to 2300 volts and serves as standby power to the old power plant. The crushing plant and quarry shovels are served from here at 2300-v. A substation in the crushing plant serves that equipment.

These substations contain all the starting equipment and instruments for the motors served by them, mounted in Zinsco uniform cabinet assemblies. The start-stop pushbuttons are mounted on control panels conveniently located in each operating department. In addition to the start and stop pushbuttons on these panels each motor also has its own emergency pushbuttons and lock switches. Each substation is pressurized to keep out dust by a small American Blower ventilator fan which provides filtered air.

In the mill building substation there are also separate G. E. Limit-Amp control panels for the 500- and 1000-hp. raw and finish motors. An emergency lighting circuit is tapped in ahead of the main circuit breakers for use when needed.

Most of the electric motors in this plant, including all the large ones are General Electric. Many of the smaller motors of Louis Allis manufacture came from the Mobile plant and were unused.

Town and Clinic The town of Portland, in which most of the houses and buildings are owned by the company, gets its water supply from the plant. A recently-completed sewage-disposal plant, containing some Dorr equipment, serves both the town and the plants.

In Portland is the Chas. Boettcher Memorial Clinic and Hospital which was presented to the town in March, 1947, by the late Chas. Boettcher, who was one of the greatest developers of the Rocky Mountain area, as well as the founder of the Ideal

chain, and its active president until his recent death. This hospital is unusually well equipped, having a 3-bed ward, an operating room, an X-ray room, radiant heating, attractive offices and waiting rooms, etc.

DEVIL'S SLIDE PLANT

As has been previously stated, the Devils Slide, Utah, plant of the Ideal Cement Co. is basically similar to the one at Portland. The few major differences are due to topographical conditions and the nature of the raw materials and fuels used.

The original dry-process plant there was built in 1907 (see PIT AND QUARRY, August, 1940, pp. 31-33, for a complete description of the old operation) and has also been improved and enlarged from time to time. The three original 8- by 150-ft. Allis-Chalmers kilns are still in use. A fourth kiln was installed in 1909 but was later removed for use elsewhere.

As the only cement storage facilities were the old original stockhouses, the first step in the new program was the building of new silos and a packhouse. This was completed in November, 1946. (See PIT AND QUARRY, November, 1947, pp. 107-110, for complete description.) The new crushing plant was in operation on August 27, 1948, the raw mills on September 13, the kilns on October 1, and the finish mills on October 18.

The quarry at Devil's Slide has a face with a maximum height of approximately 300 ft. The stone is massive and drilling and blasting are done by means of coyote holes. Shots of up to 400,000 tons each are made. There is a new P & H electric shovel and an older Marion 490 electric, and three Euclid 15-ton diesel trucks are used for the comparatively short haul to the crushing plant. The stone is discharged from the trucks into the 42-in. Allis-Chalmers McCully gyratory crusher. The crushed stone drops into a 3-ton surge hopper from which a 36-in. by 170-ft. inclined belt conveyor carries it to the two 6- by 12-ft. Allis-Chalmers Ripl-flo 2-deck screens. This conveyor, like the one at Portland, is equipped with a Dings magnetic head pulley and iron detector.

The oversize from the screens drops into a Pennsylvania No. 15-50 Impactor and is returned on a short belt conveyor to the 3-ton hopper for recirculation to the screens. This plant is fully enclosed because of the severe winters.

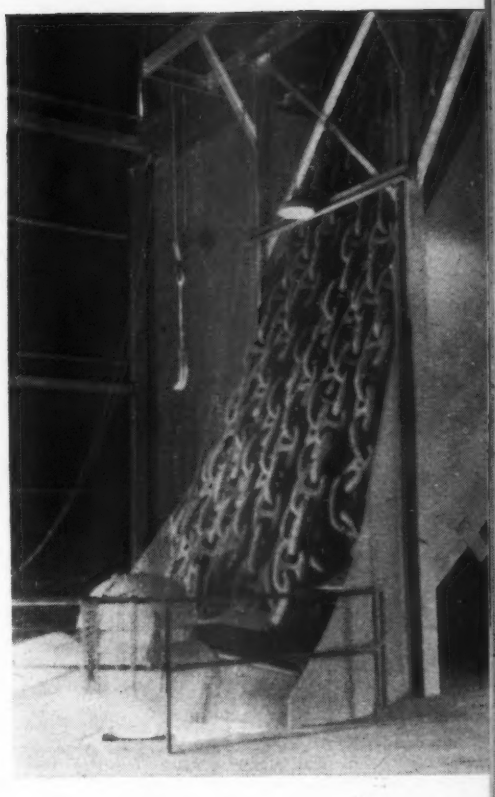
A 30-in. by 780-ft. trestle belt conveyor carries the minus-¾-in. finished stone and the dust from the Norblo No. 440 dust collector to the raw material section of the covered storage. A Merrick Weightometer on the conveyor weighs the stone into storage.

In the raw-grinding department the mills are 9 ft. 6 in. by 13 ft. 2 in., 3 ft. longer than the Portland mills, and are driven by 700- instead of 500-hp. motors. In the primary mill the ball load is 54½ tons, 13½ tons greater than at Portland. The loading consists of 50 percent 3½-in., 30 percent of 3-in., and 20 percent of 2-in. forged steel balls. The secondary mill has a ball load of 57 tons, 14 more than at Portland. It consists of 57,000 lbs. of 2-in., 34,000 lbs. of 1½-in., and 23,000 lbs. of 1¼-in. balls.

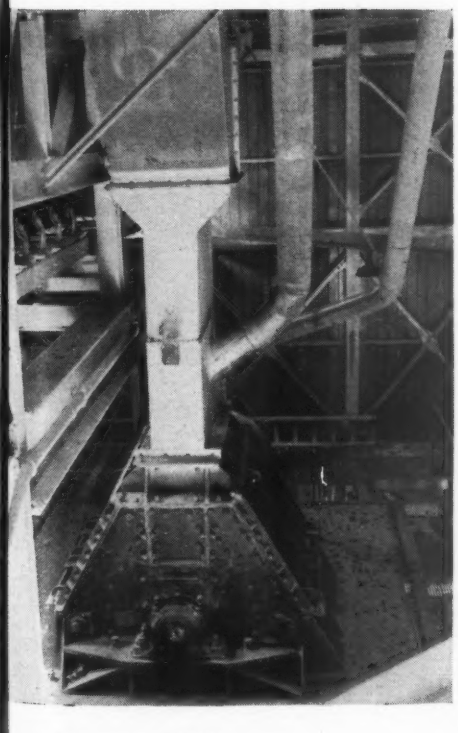
The three thickeners at Devil's Slide are 125 ft. in dia. instead of 160 ft. and their concrete outer walls are 12 ft. high instead of 10 ft. The makeup water at this plant is supplied by Pomona deep-well pumps. Dorrco pumps are used to feed slurry to the kilns with ferris wheels as standbys. These pumps not only have rheostat-controlled d.-c. motors but their strokes are also adjustable.

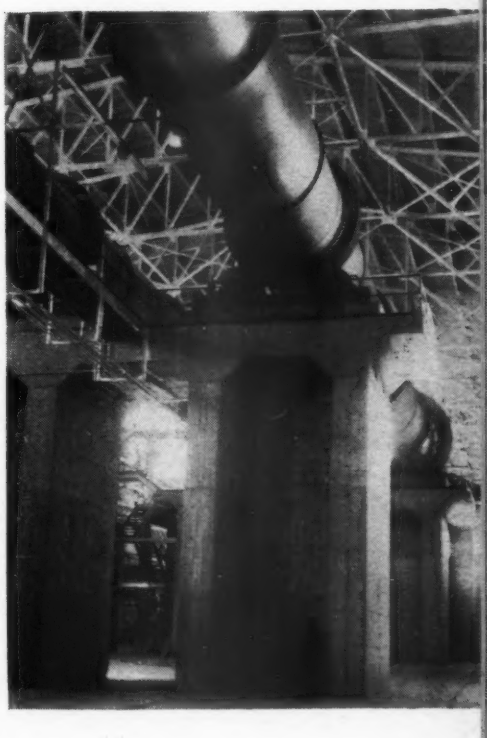
The two kilns have individual Raymond No. 493 direct-firing coal mills which are rated at 12,000 lbs. of coal per hr. The coal is received in cars and discharged into a 14- by 21-ft. track hopper from which a Jeffrey-Traylor vibrating feeder, a 24-in. belt conveyor and a bucket elevator feed it into the 122-ton coal pocket, or into a screw conveyor which discharges into either of two 38½-ton conical bottom bins over the coal mills. There is an 1800-ton reserve storage in the storage building which is served by the overhead crane. Coal is withdrawn from the dump pocket onto a belt conveyor which feeds the same bucket elevator mentioned above.

The finish grind circuit is identical



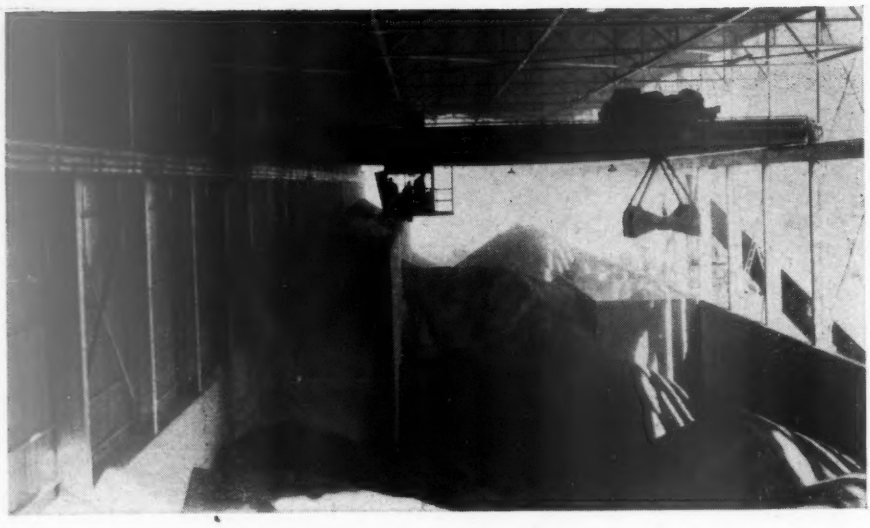
• The feeder and the top of the 42-in. gyratory crusher.





• Left: Looking down on the hammermill, which is used as a secondary crusher.

• Right: The feed ends of the 10- by 400-ft. kilns.



• The 80-ft. span by 460-ft. long craneway storage as seen from the clinker end. To the left are mill feed bins; to the right, iron ore and gypsum bins.

to that in the Portland plant.

The finished cement is pumped from this plant to the new 180,000-bbl. storage which consists of twelve 30- by 90-ft. concrete silos and six interstices. The old stockhouse near the silos provides an additional 70,-000-bbl. storage and four 3-tube packers. Each of the three rows of four silos each, and each of the two rows of three interstices is in line with a 4-tube St. Regis bagger in the new packhouse, making possible the storage and packing of five types of cement simultaneously, if desired, without contamination. The packing system is one of the important features of this operation. It was fully described in an article in the November, 1947, issue of PIT AND QUARRY, pp. 107-110.

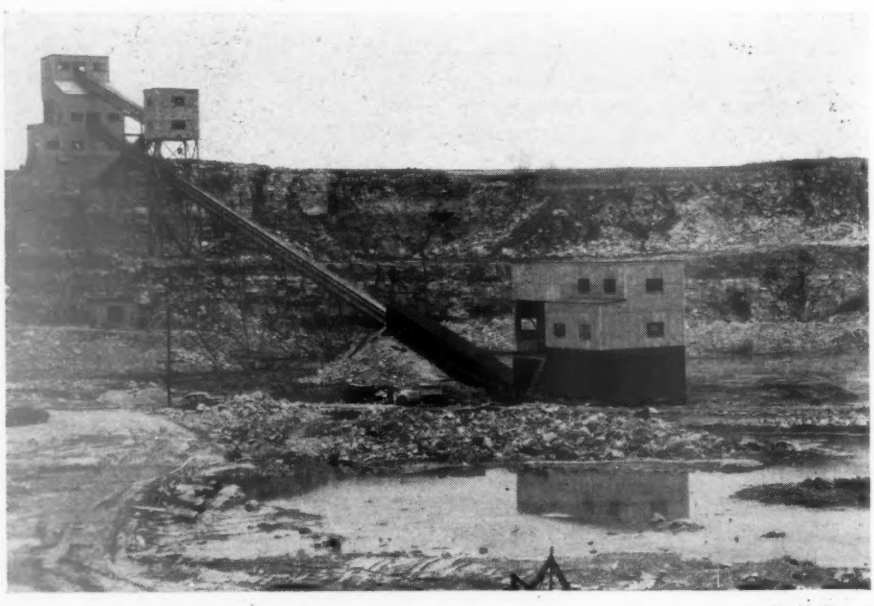
GENERAL INFORMATION

C. K. Boettcher is president; Cris Dobbins, executive vice-president and general manager; M. O. Matthews, vice-president and general manager of the Southern Division, with headquarters at Ada, Oklahoma; and G. W. Ballantyne, secretary-treasurer. Thomas B. Douglas, as general superintendent, is in direct charge of production and engineering.

George Wiley, general engineer, headed the company's engineering staff which developed the general design with the aid of executives and operating officials throughout the company. W. R. Bendy, prominent cement plant engineer, was engaged as consultant. The Stearns-Roger Manufacturing Co., Denver, Colo., contractors and engineers of many years experience in the mining field, performed the detailed engineering and built both plants.

G. T. Horlbeck was the project engineer at Portland and Hugh Conner did the same work at Devil's Slide. Until recently, J. C. Andrews, now chief production engineer, was divison superintendent for the Northern Division, which includes Devil's Slide and Portland.

C. Rodarmel is division superintendent of the Southern Division. S. A. Gretencort is plant manager at Portland and John Baker is assistant superintendent; A. W. Hooton is plant manager at Devil's Slide and Hugh Conner is assistant superintendent.



• A scene at the Ft. Bellefontaine quarry near St. Louis, Mo., where the Missouri Portland Cement Company is building an access road. This work is a part of the preparations being made for putting into operation a new crusher building.

Six Lime Plants Win Awards In '47 N.L.A. Safety Contest

Winners of awards in the National Lime Association Safety Competition of 1947 achieved outstanding safety records, according to the U. S. Bureau of Mines, which conducts the annual competition. The National Lime Association will award Certificates of Honor to six lime plants in recognition of their accomplishments in injury prevention. Perfect safety records of no disabling injuries during the year were achieved by four of these plants. The six winning plants had the outstanding safety records in each of the four groups, into which the 40 enrolled lime plants are classified as to size and type of operation. The winners of awards are as follows:

Group 1—York lime plant, York, Pa., operated by the National Gypsum Co., 259,697 man-hours without a lost-time injury.

Thomasville lime plant, Thomasville, Pa., operated by The J. E. Baker Co., 106,476 man-hours without a lost-time injury.

Group 2—Thomaston lime plant, Thomaston, Me., operated by the Lawrence Portland Cement Co., 70,813 man-hours without a lost-time injury.

Linville lime plant, Linville, Va., operated by the Southern Lime and Stone Works, 28,211 man-hours without a lost-timee injury.

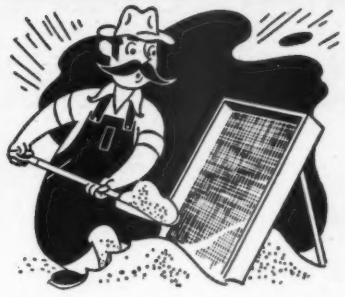
Group 3—Bellefonte plant, Bellefonte, Pa., operated by the National Gypsum Co., 362,869 man-hours with two lost-time injuries which caused 61 days of disability. The injury-severity rate was 0.168.

Group 4—Houston plant, Houston, Tex., operated by Nyotex Chemicals, Inc., 30,509 man-hours with one lost-time injury which caused nine days of disability. The injury-severity rate was 0.295.

The aggregate injury experience of the 40 enrolled plants in 1947 was, in general, unfavorable. While the enrolles had established a record low in-

(*Continued on page* 123)

Screenings



by William M. Avery

WE'VE just about decided that when Uncle Sam makes a major move for the expressed purpose of protecting little fellows, it's time for the little fellows to duck fast or run like hell. Unc's intentions are probably excellent, but too often, when he gets all through protecting the small operator from some real or imagined hardship imposed by the big one, it's actually the little guy who winds up wondering what hit him.

The now famous Cement Decision seems to be a case in point. We've spent several days tabulating returns from a PIT AND QUARRY questionnaire in which producers of concrete masonry units and ready-mixed concrete submitted data showing how

the Cement Decision has affected their operations. The boys are still on their feet, but with only a few exceptions they seem to be considerably worse off than they were before the government decided they needed protection from the big, bad cement industry. They're paying more for cement (an average of 20 cents per barrel), and having greater difficulty in getting it at any price. In many instances cement users who bought from two or more mills under the basing point system are now completely dependent upon just one mill, and a fair number have wound up without any source of supply. Unc reminds us in a lot of ways of an oversized dog we used to know who was always knocking people down in his violent attempts to show how much he liked them.

Simile of the Month

THERE turned up in the mail the other day a reprint of the *Hartford Courant's* book review of *Falk's Graphical Solutions to* 100,000 *Practical Problems.* It was all pretty delirious, but we were completely enchanted by this statement:

"If *Falk's Graphical Solutions* accomplishes nothing else, it does suggest that complex mathematics can, for all practical purposes, be made as simple as reading a railway timetable."

Gad, d'ya suppose that means there are really mathematical problems *more* complex than reading a railway timetable?

Potential Lime Boom

A REPORT from Washington, D. C., tells about a guy who spread lime on the walk in front of his house when he became suspicious that his wife was having an affair with another man. His suit for divorce was based on later finding size

10 footprints leading up the stairway and into his wife's bedroom.

We hope the National Lime Association will take immediate steps to nurture this promising new market. On the strength of current divorce statistics, it could easily run circles around any of the present markets. Who knows? Lime might even become as scarce as portland cement.

That's That Department

WE were glaring in despair the other day at the seemingly endless list of association meetings scheduled for the remaining winter months, when we were struck by an inspiration. It was a glancing blow, and as soon as we had recovered enough to stagger back to our desk, we dashed off articles of incorporation for a brand new organization called the National Association for Preventing the Formation of Any More National Associations. Trade paper editors and others desiring to join the N. A. P. F. A. M. N. A. are urged to apply immediately for charter membership. Annual meetings will be held on February 30th.

The Pun-gent Press

WE NOTED the other day that a new trade paper is being published for the potato industry. It's called the *Common-Tater.* Having a pronounced weakness for puns ourselves, we should probably be tolerant of this one, but something tells us that the editors are going to get awfully sick of that name eventually. Even the best of puns should flash across the sky with the speed of Halley's comet, and, if anything, should reappear rather less frequently.

This reminds us of a recent item in *Advertising Age* disclosing that

the former editor and publisher of *Go* (now defunct) has launched a new monthly magazine called *Stop.* Seems to us he might have thrown an issue or two of *Caution* in there somewhere, if only to save his brakes.

Calcium, Agstone, Concrete Block, Pipe, Ready-Mix Made at One Site

Raw Materials Received by Boat; Products All Sold Through Dealers

another ON THE SPOT report

THE F. Hurlbut Company of Green Bay, Wisconsin, is an interesting example of an old established concern which has entered upon a program of diversification in order to insure year-round productivity of

By WALTER E. TRAUFFER

its property and equipment and year-round employment of its men.

The Hurlbut company is primarily a dock company. It was founded in 1872 — in the days of sailing ships—and its first dock was built in that year. Down through the years it has handled a variety of products, bringing them to Green Bay by lake vessel, unloading, storing, regrading and trans-shipping out into Wisconsin by truck and rail.

By 1938 the business had outgrown its old dock facilities and a new dock was built. A piece of property was purchased near the mouth of the Fox River and a slip 160 feet wide, 24 feet deep, and 1800 feet long was dredged down the center. Dock space was provided on either side of the slip and extending beyond it an additional 300 feet. On one side the dock is 250 feet wide; on the other, 300 feet. Side tracks, each 2100 feet long, serve both sides of the dock.

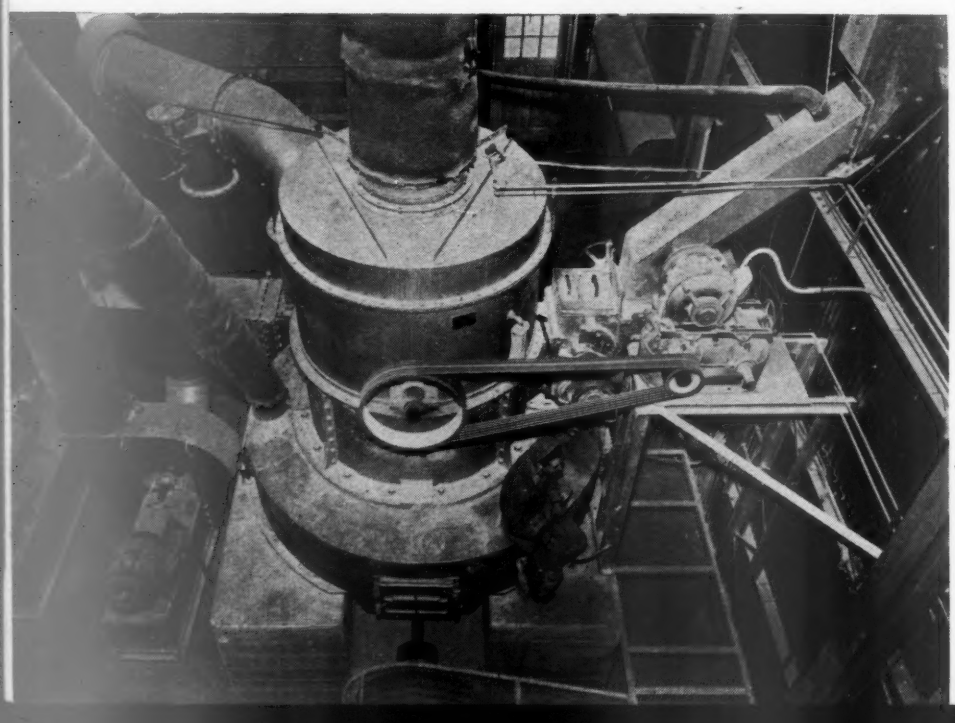
The Hurlbut company has been a wholesaler and retailer of coal since its founding. One side of its new property was set aside for coal storage. The other side was planned for the storage of stone, the basic material on which Hurlbut's new expansion program was to be built. From that day to this, the expansion has been rapid.

In 1940 the company began the production of ready-mixed concrete. In 1941 it started to cast concrete pipe. An agricultural limestone plant was built in 1942. During the war years, the company began to handle open-hearth stone for paper mills and sugar beet plants, foundry fluxing stone and stone for many other uses. In 1946 the company built a large new concrete block plant. In February, 1947, a pulverized calcium plant was added; and in April, 1947, a concrete pipe plant. All of these have been running full blast since they started. Considerable equipment outside of these plants has also been added, the latest being a crawler crane with a 9-cu. yd. clamshell bucket for unloading cargo.

It takes a lot of material to keep these plant divisions going. In addition to its coal and coke tonnage of approximately 250,000 tons, the company brings in approximately 300,000 tons of stone, sand, and gravel, and 35,000 tons of blast furnace slag. Only about 10 percent of the stone and gravel is sold as such —the rest is processed or used in the company's various products.

Material is received in self-unloading and bulk boats of up to 12,300 tons capacity, which are unloaded into stockpiles on both sides of the slip. A record was set when one of the self-unloaders was in and out of the slip in 6 hrs. Ordinary cargo vessels are unloaded by the company's cranes, and a Towmotor lift-truck is used in their holds to help clean up. The newest crane is the biggest, a Manitowoc No. 4500 diesel Speedcrane with a 9-cu. yd. Blaw-Knox clamshell bucket. This machine is used for unloading stone and coal from bulk boats and for rehandling from the larger stockpiles. The huge crawler unit is powered by two General Motors diesel engines totalling 300 hp. and has a 120-ft. boom with the outer 80 ft. made of aluminum. With this bucket it has a working radius of 105 ft. This Speedcrane has unloaded a 7500-ton stone boat in 24 hrs. In spite of its size this crane can make the ½-mile trip from one side of the slip to the other in ¾ hr.

The company also has two 2000B Manitowoc Speedcranes and two Northwest cranes—a No. 41 and a No. 6—which are moved around as needed. A Caterpillar tractor with a bulldozer is used for cleanup work. Two 2100-ft. sidetracks on each side of the slip provide adequate car loading capacity.



• The 5-roll, high-side calcium grinding mill at the F. Hurlbut Co. plant, Green Bay, Wis., with the feeder (right), drive (foreground), fans (left), and furnace (background).

Sales Policy The company's basic sales policy has always been to sell through dealers. In Green Bay proper, the company has always been a retailer of both coal and building materials, so naturally it retails its own products in that area. Outside of that area, however, it market its products through coal dealers, lumber and building material dealers, and feed dealers, as the case may be.

Coal is shipped by rail and truck

to retail dealers and steam plants located in the state and the upper peninsula of Michigan. Blocks, brick, tile, culvert pipe, sewer pipe, and drain tile are shipped by rail and truck to 380 lumber dealers located in Wisconsin and upper Michigan. Feeding calcium, agricultural limestone, and barn lime are marketed through feed dealers and sold to large feed mills in Wisconsin, Minnesota, eastern Iowa, Michigan, and northern Illinois.

To move its products, the company maintains 35 trucks including pipe trailers, block trailers, coal trucks and ready-mix trucks. In addition, it hires as many as 14 flat-bed trailers a day from the Leicht Transportation Company to handle block and pipe. Most of its tonnage, however, moves by rail.

The company supports its dealers' sales efforts with radio advertising over seven stations spread out through its major marketing area. This consists of 1-minute spot broadcasts preceding regular news programs. These stations are located at Menominee, Michigan, and Green Bay, Rhinelander, Wausau, Wisconsin Rapids, Madison and Paynette, Wisconsin.

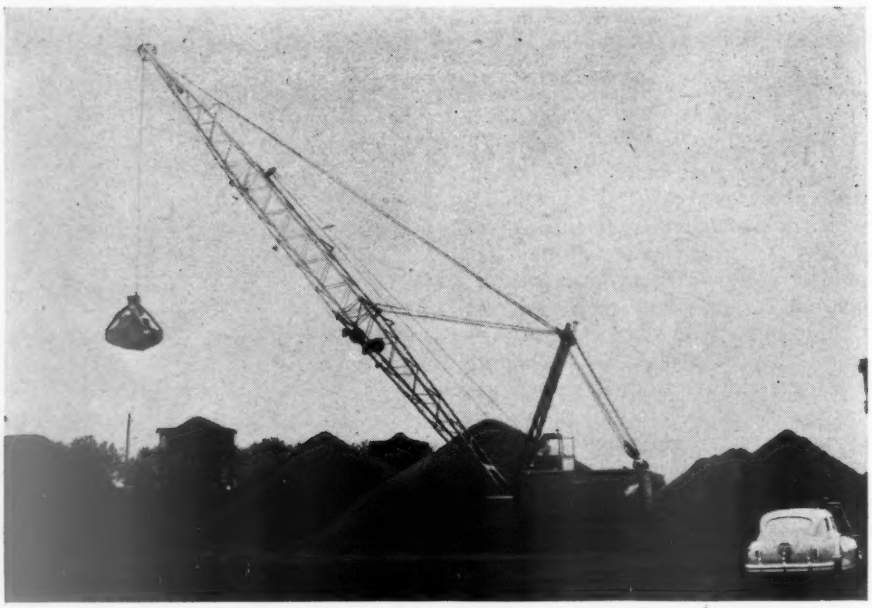
• The 4-tube calcium bagger, with its automatic and pushbutton controls.

Calcium The calcium plant is operated by the Hurlbut Calcium & Chemical Co., a subsidiary. From high-calcium limestone this plant makes feeding calcium which is purchased by feed mills and mixers to mix with animal and poultry feeds. This product runs 70 percent through 200-mesh and contains 38 percent of elemental calcium, 98 percent calcium carbonate.

Limestone of slightly lower calcium content is ground to be sold as agricultural limestone and as a non-slip barn lime. It has been found that farmers in this area prefer this bagged and finely-ground agstone because it can be applied when they want it, and because this minus 60-mesh product is available to the soil inside of a year, an important factor with the present high food prices. This fine agstone also gives the best distribution through the 4 inches of topsoil where it is most needed. The barn lime is an important new product which seems to have an excellent future.

The fourth product made in this

• The Hurlbut dock and slip at Green Bay. In the left foreground is the 9-cu. yd. crawler crane unloading coal from a steamer. Coming toward the camera are: the agricultural limestone plant; the aggregate batching bins for the ready-mix trucks; the calcium plant, with the addition to storage under construction; and the concrete products plants, with their yard storage (bottom of picture). In the lower right-hand corner may be seen the cement-batching plant for the ready-mixed concrete trucks, the offices, the shops, and the scale house. All trucks enter and leave the yard here. The black piles are coal and coke.



• The huge crawler crane, with its 9-cu. yd. clamshell bucket, which unloads boats and does most of the yard handling.

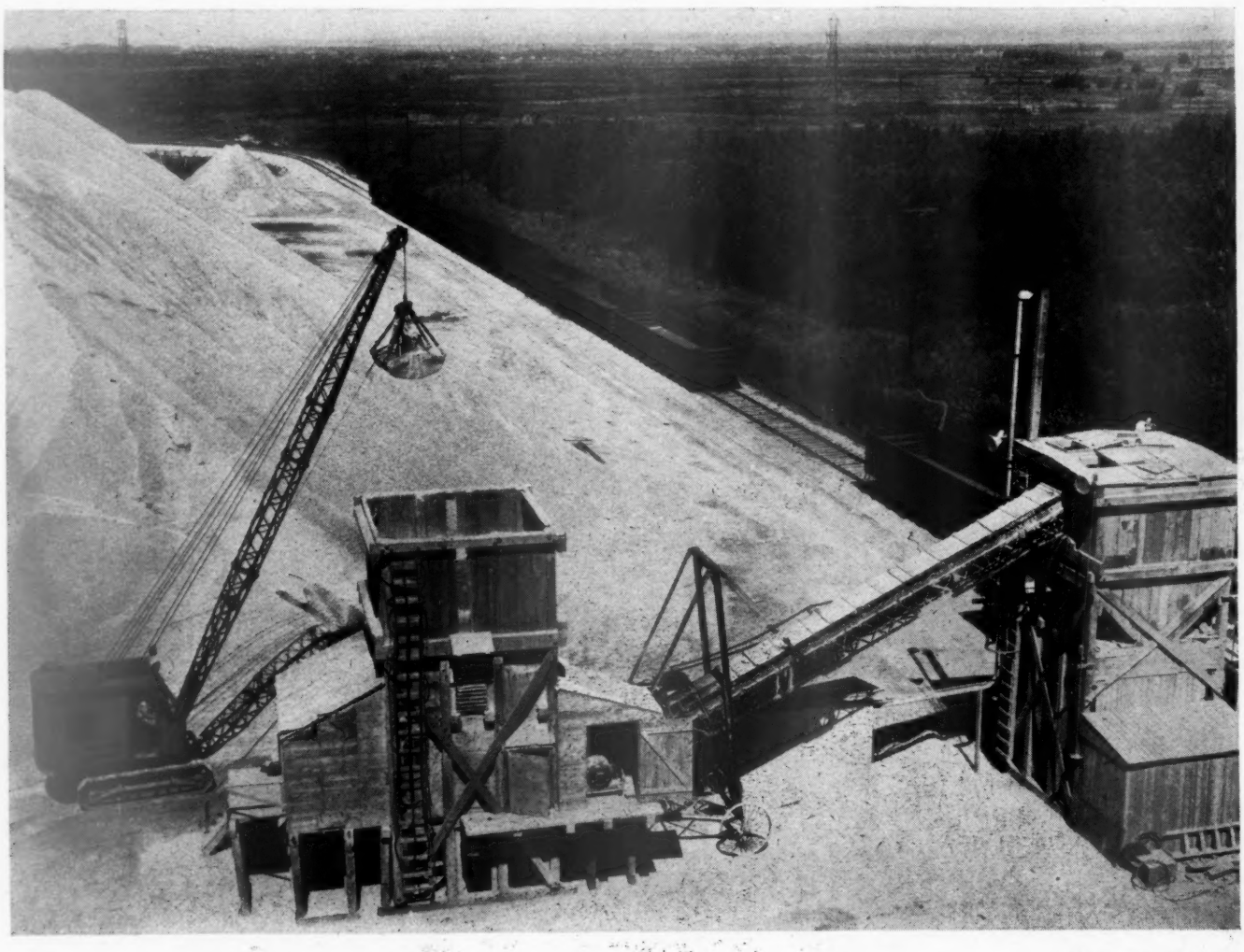
plant is a minus 200-mesh mineral filler which is sold in bulk and in bags to asphalt paving contractors.

The plant has a capacity of 50,000 tons annually of these four products combined. It is capable of producing much finer material than is now required, down to about 99 percent through 325-mesh. Other potential outlets for its products are being investigated.

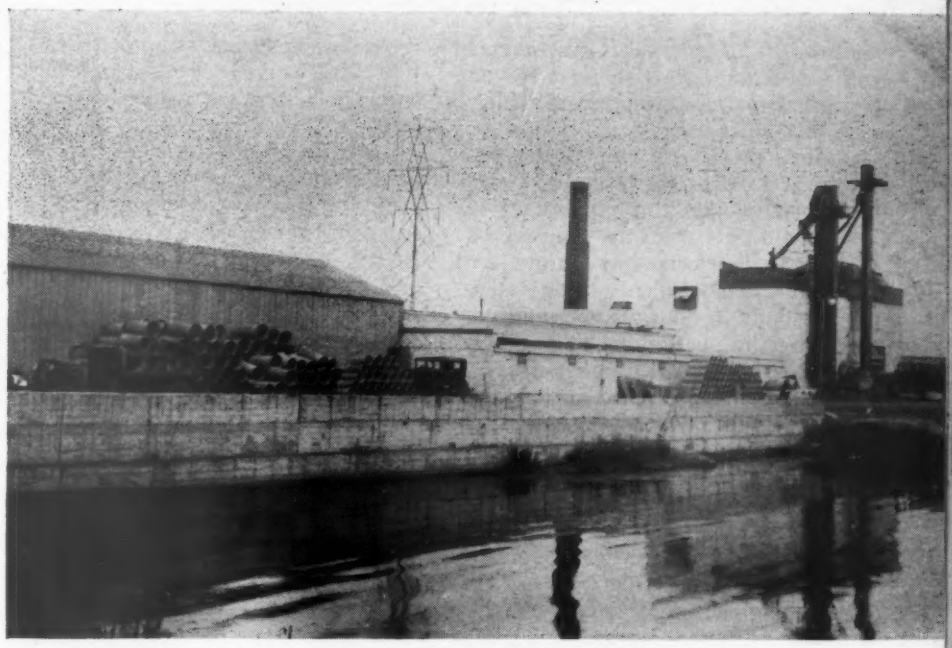
The engineering on this plant was done by the company's staff in cooperation with the Raymond Pulverizer Division and the Stephens-Adamson Mfg. Co. The all-steel and concrete building was designed and erected by the Wisconsin Bridge & Iron Co. and has Robertson protected metal roofing and siding.

One of the cranes feeds stone from stockpiles into a 50-ton plant bin from which it is discharged through a spout into the Raymond mill. This spout is equipped with two Syntron electric vibrators which are needed only in winter to keep the stone flowing freely. The No. 6058 5-roll, highside mill is equipped with an integral single whizzer. It is connected to a hot-air furnace with a Combustion Engineering Corp. side-dump stoker for closed-circuit drying and grinding.

The dried and ground material from the mill is blown to a 9-ft.-dia. Raymond cyclone, the product of which drops through a Raymond double-discharge valve into a 150-ton bin. The air and fine dust passes back into the mill fan and the line from it to the mill is vented to a small fan feeding to a 7-ft. concentrator or cyclone which in turn vents



• The agricultural limestone plant, viewed from the top of a stone pile. The finished product is loaded into cars at the right.



• The concrete products plant, seen from the opposite side of the slip, with aggregate and cement elevators at the right.

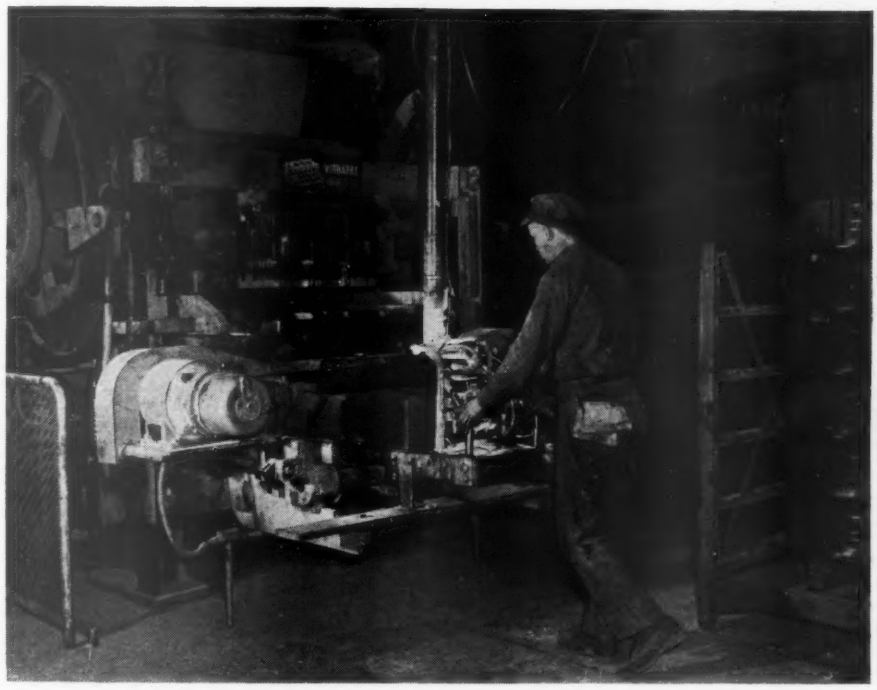
to atmosphere. The coarse again drops back into the mill.

The mill is driven by a 150-hp. Allis-Chalmers motor through an Allis-Chalmers Vari-Pitch drive. This makes it possible to vary the speed of the mill with the size of product being made.

Two Stephens-Adamson Redler conveyors to opposite sides of the building are fed direct from this bin through Butler rotary valves for bulk loading of box cars and trucks, discharging into them by gravity. By this means a car can be loaded in one hour.

Bagging of this product is done by a St. Regis system. The pulverized limestone is discharged from the bin by means of a St. Regis feeder into a surge bin. This is equipped with upper and lower level Bindicators to maintain a constant head over the St. Regis 4-tube bagger. Both 50-lb. and 100-lb. valve bags are used for this product. These drop on a Stephens-Adamson woven wire belt conveyor which is reversible and movable on wheels, so that cars can be loaded on one side of the building and trucks on the other side. A photo-electric device counts the number of bags going into a car. This system will bag at the rate of 1 ton per minute and the 150-ton bin makes it possible to bag in one 12-hr. shift the entire 24-hr. output of the plant. A 90-ft. extension to this building is now being built for additional bagged storage.

A Sly dust collector in this building is connected to the bagger, the bag conveyor and other points where dust is created. The collected dust goes back into the main bin.



• The vibrating block machine, which operates 24 hours daily, six days a week, and all winter.

• A power-lift truck loading cubed blocks on a truck for delivery.

Agstone The agricultural limestone plant was built in 1942 and was enlarged to its present size in 1945. It can now produce 50 t.p.h. of minus 8-mesh product.

The stone is rehandled by a crane from the stockpiles to a bin from which a conveyor discharges into the plant feed hopper, which has two chutes, each equipped with a magnet to protect the mills. These magnets draw the metal up against the top of the rubber-lined chute. When the mill is shut down, a metal plate is inserted in a slot over the mill and the magnet shut off, letting the metal drop on the plate, which is then withdrawn. These chutes feed to the two No. 16 Gilson hammermills which are driven by 125-hp.

motors. The agstone is discharged on a 30-in. by 60-ft. belt conveyor feeding into the hopper from which cars and trucks are loaded.

Concrete Products The Hurlbut concrete block and pipe plant is probably the busiest plant on this very busy property. For three years it has been operated 24 hrs. daily, 6 days a week, and all through the winter. The other plants are operated at night only occasionally. This plant originally produced only concrete block and brick, but a pipe machine was later installed and now cast concrete pipe, concrete lintels, sills, etc., are also made.

The block operation was designed for a curing and drying cycle which would take the block from the machine to the storage yard within a 24-hr. period, ready for delivery as soon as they leave the kiln. A large range of block sizes and shapes—62 in all—is made in order to meet all needs of architects and builders and to eliminate most of the chipping and fitting usually found necessary on the job site. Liteweight slag units of nearly every size and type are made; these weigh about two-thirds as much as the regular units.

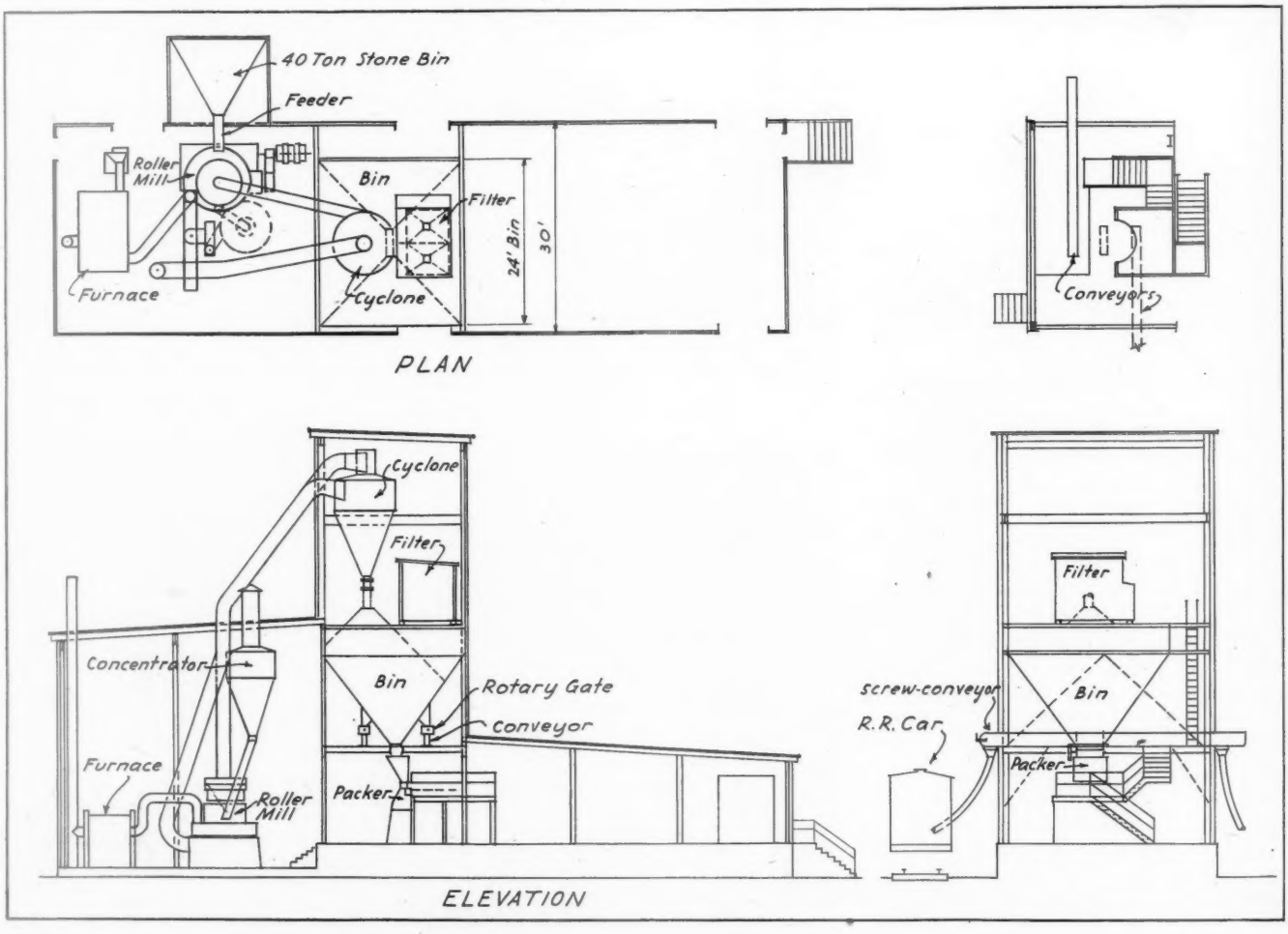
Cement for all operations is delivered in bulk by the Leicht Transfer & Storage Co. in Butler Bin Co. 100 - bbl. - capacity self - unloading bodies on flat-bed trailers. These bodies can be removed and the trailers used for hauling sacked cement. At the concrete products plant the bulk cement is discharged from trucks into a hopper, from which it is elevated to a 2-compartment bin, one compartment serving the block and the other the pipe machine. Air-entraining cement is now being used almost exclusively. Aggregates —water-granulated slag and limestone sand for the blocks and special pipe, and crushed stone, gravel and natural sand for all products—are elevated and discharged to three bin compartments. At the opposite end of the building are three aggregate bins for concrete pipe which are served by a crawler crane. Fly ash is also being used in the pipe only and calcium stearate in the concrete bricks.

Under this row of eight bins are two Butler traveling weigh batchers which can serve either set of bins and either of the two Besser 50-cu. ft. mixers which are fed by Besser skips. One of these mixers supplies the Besser Super Vibrapac block machine and the other the McCracken Model T pipe machine. The block machine also makes concrete brick and 4-in. drain tile.

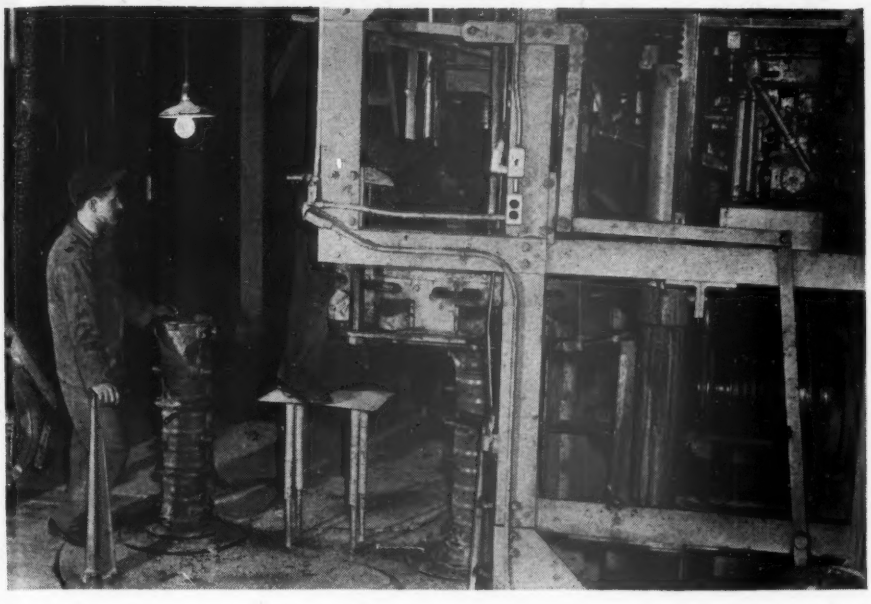
The blocks are taken from the machine by a Besser offbearer to 72-block racks. Power lift-trucks carry these racks into the curing rooms. There are 14 curing rooms arranged in two rows on each side of a passageway. These 12-ft. 8-in. wide by 25-ft. 8-in. long rooms are open only on the inside with doors hinged at the top and operated by a Budgit electric hoist. The walls are of concrete blocks with the exposed ones insulated; the roof is a concrete slab. Steam for all curing is supplied by a 120-hp. boiler.

Curing is done in two stages. The blocks are first allowed to set up for 2 hours before live steam is turned on. Then for 8 hrs. they are exposed to live steam, the first 3 hours being required to bring the room temperature up to the desired 180 deg. F. At the end of this period the steam is automatically shut off and the blocks are allowed to soak for 8 hours. The drying cycle then begins, with 180-deg. air being passed through the rooms by a thermostatically - controlled unit heater.

The cured blocks on their racks are then moved by power lift-trucks to outdoor storage, which consists of



• Plan and elevation of the new calcium grinding mill.



• Adjusting the concrete pipe machine, which makes 6- to 24-in. sizes.

a 200- by 650-ft. concrete paved area. All blocks are cubed for easier rehandling and loading. If desired the racks can be deposited on tables and the blocks loaded direct to trucks for delivery.

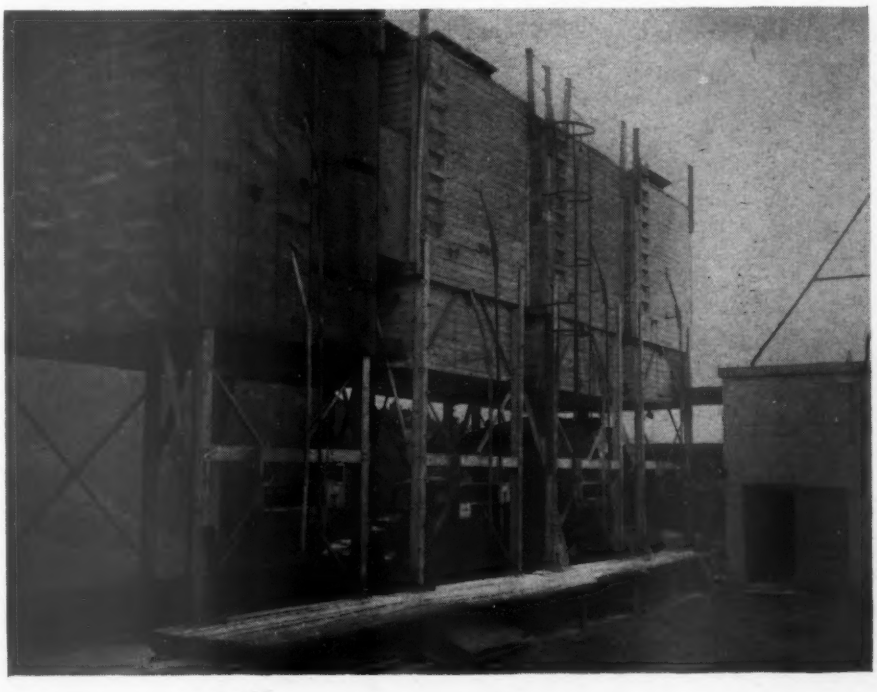
Concrete Pipe The McCracken pipe machine makes a wide variety of sizes and types including: 6- to 24-in. plain bell-and-spigot sewer pipe, 12- to 24-in. reinforced b-and-s sewer pipe, 12- to 36-in. reinforced tongue-and-groove culvert pipe, and 8-, 10-, and 12-in. drain tile. The drain tile are made in 4-ft. lengths, scored so that they can be broken into 1-ft. lengths when in place.

Carts are used to carry off the machine-made pipes to three 26-ft. deep curing rooms and three 60-ft. deep rooms on opposite sides of a passageway on the opposite side of the plant from the block curing rooms. These rooms have doors at both ends and the pipe go to outdoor storage after they are steam cured. Pipe tests are made on a Black & Decker 3-point compression testing machine.

Larger pipes are cast on pallets in the yard in sizes from 42-in. to 60-in. diameter. Vibrators are attached to the forms and lift-trucks handle the forms and cast pipe to and from the curing rooms and the finished pipe to and from storage. Five 6,000-lb.-capacity gasoline lift-trucks — four Towmotors and a Clark—are used in the block and pipe operations and for other purposes.

Ready-Mixed Concrete The layout of the yard made a conventional type of ready-mixed concrete plant impractical. The truck mixers, on entering the yard, are loaded with cement at a Butler 250-bbl. 2-compartment bin which is fed by a bucket elevator. The trucks are then driven under four Butler bins located near the center of the aggregate storage area. Sand, stone sand and crushed stone are stored, and mixer loading is by means of weigh batchers controlled from the ground. Cranes load the bins, which are mounted on skids so that they can readily be moved to other locations. A 100-lb. high-pressure boiler is available for heating these materials for winter operation.

There are five 4½- 5-cu. yd. truck mixers—two Jaegers and three Chain Belt Rex—all on full trailers drawn by White, International and Ford tractor trucks. These tractors can be used for hauling dump trailers for coal, stone, etc., when desired. There are also two 3-cu. yd. mixers —a Jaeger and a Rex—mounted on International truck chassis.



• The bins and the batchers which measure the aggregates for the ready-mix trucks.

Lime Plant Awards

(*Continued from page* 116)

jury-severity rate of 2.925 in 1946, the rate rose sharply to 5.444 in 1947, an increase of 86 per cent. This rate was the third highest in the 13 years of the competition and was well above the average severity rate of 4.341 for the period. On the other hand, the injury-frequency rate of 32.663 in 1947 represents a 5 per cent decrease from the previous year and is below the average frequency rate for the 13-year period. The greatly increased severity rate in 1947 can be explained by the fact that in the enrolled plants there were four fatal injuries in 1947 but only two in 1946; moreover the number of days of disability resulting from permanent partial injuries in 1947 more than trebled the corresponding total of the previous year.

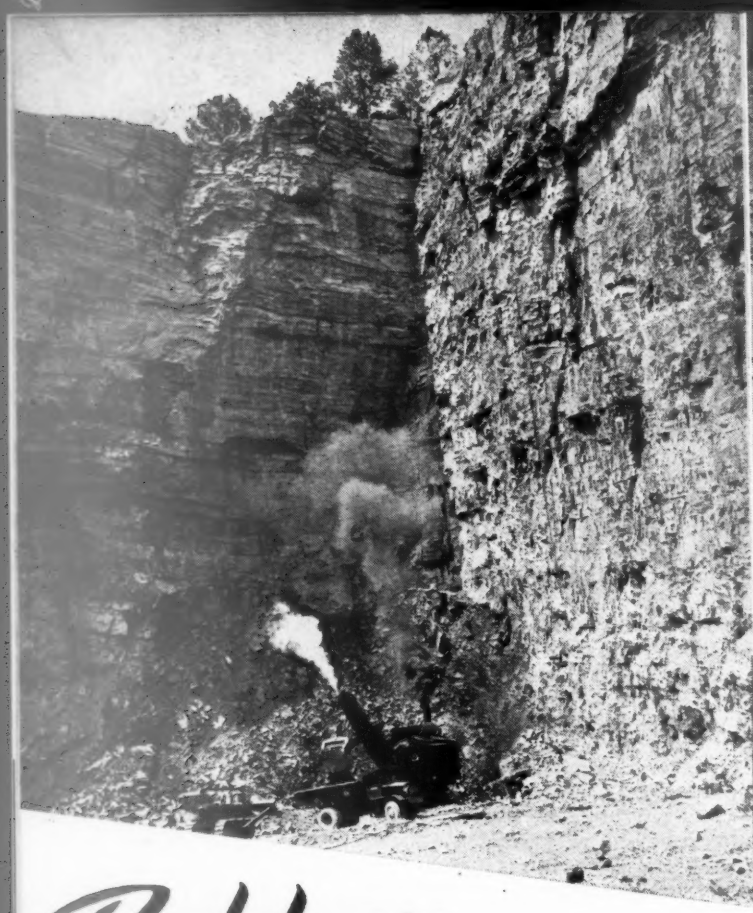
The new grouping of lime plants in the annual National Lime Association Safety Competition is as follows:

Group 1—Lime operations with both quarry and calcining plant working 100,000 or more man-hours during the year.

Group 2—Lime operations with both quarry and calcining plant working less than 100,000 man-hours during the year.

Group 3—Lime operations with both underground mine and calcining plant.

Group 4—Lime calcining plants without associated quarry or mine.



Left: Close-up of 200-ft. high quarry face at Blue Ridge Stone Corp.

Above: The first of the four belt flights emerges from beneath quarry floor after receiving load of rock from the primary crusher housed in a concrete pit below water table level.

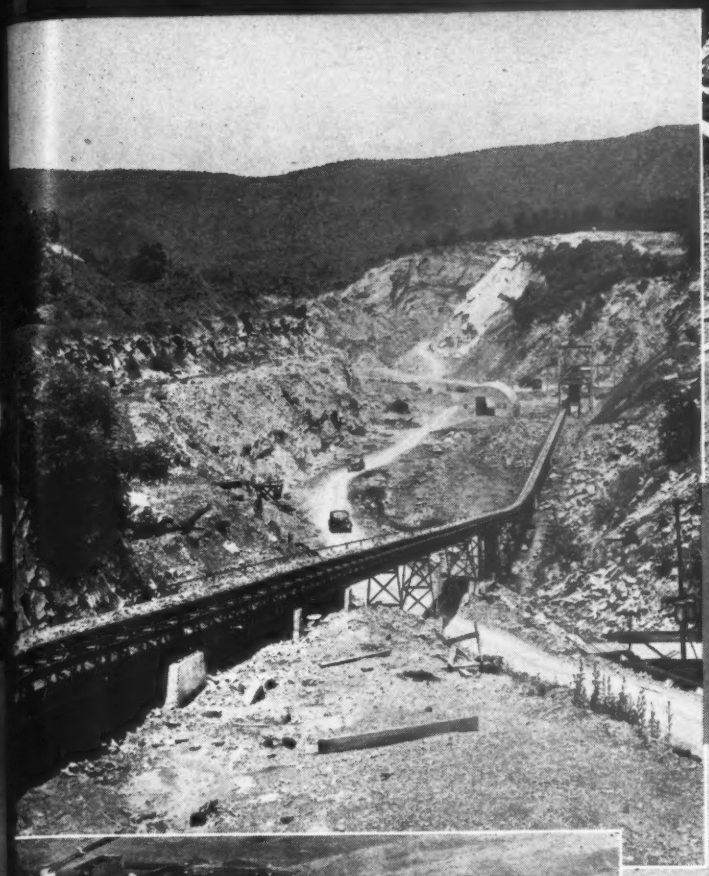
Rubber Railroad Streamlines Production at Blue Ridge

A FOUR-FLIGHT belt conveyor system is moving a limestone mountain at the rate of 350 tons per hour in the heart of Virginia's scenic Blue Ridge country. The belt system transports crushed limestone from the quarry of the Blue Ridge Stone Corp., near Roanoke, over three-quarters of a mile of rugged terrain to the processing plant. The stone is used as highway building material and as ballast for railroads.

This is a permanent installation, the conveyor system and quarry trucks replacing six small locomotives which for years struggled to haul loaded cars up a 6 percent grade and over six miles of track. The first three flights of the conveyors haul stone to the raw stockpile, while the fourth flight delivers from the stockpile to the plant. According to Abney Boxley, vice-president of Blue Ridge Stone Corp., the installation of the "rubber railroad" has provided faster and more efficient operation. He is particularly pleased by the fact that the new system makes possible the maintenance of a stockpile 24 hours ahead of finishing plant needs, thus enabling the plant to operate independently of the quarry.

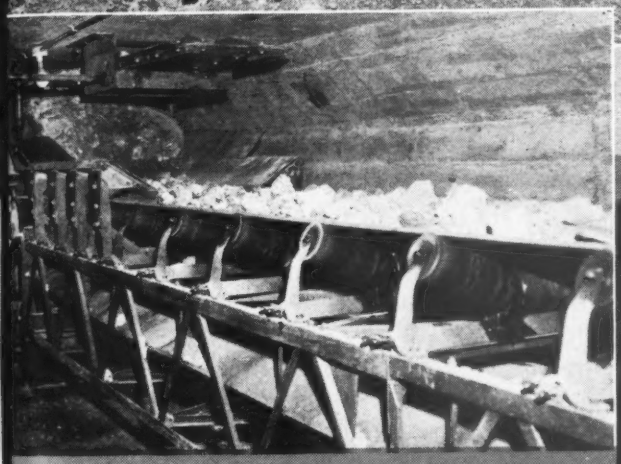
The Blue Ridge Stone Corp. decided in 1941 to replace the steam locomotives and cars, which were expensive to operate and, in addition, required a crew of trackmen to remove and relay track before and after each shot, as well as to keep the track shifted up against the face of the shot rock. That this railroad had to cross U. S. Highway No. 460 en route to the plant was another disadvantage. This system also required a water-softening plant, since available water was too hard for use with the locomotives.

To accommodate the proposed belt conveyor system, plans were drawn to place a primary crusher in the quarry and also to move the existing Allis-Chalmers No. 12K Gates



Left: Flight No. 2 runs across quarry floor, spans work road, and lifts 58 ft. in a vertical curve to the rim.

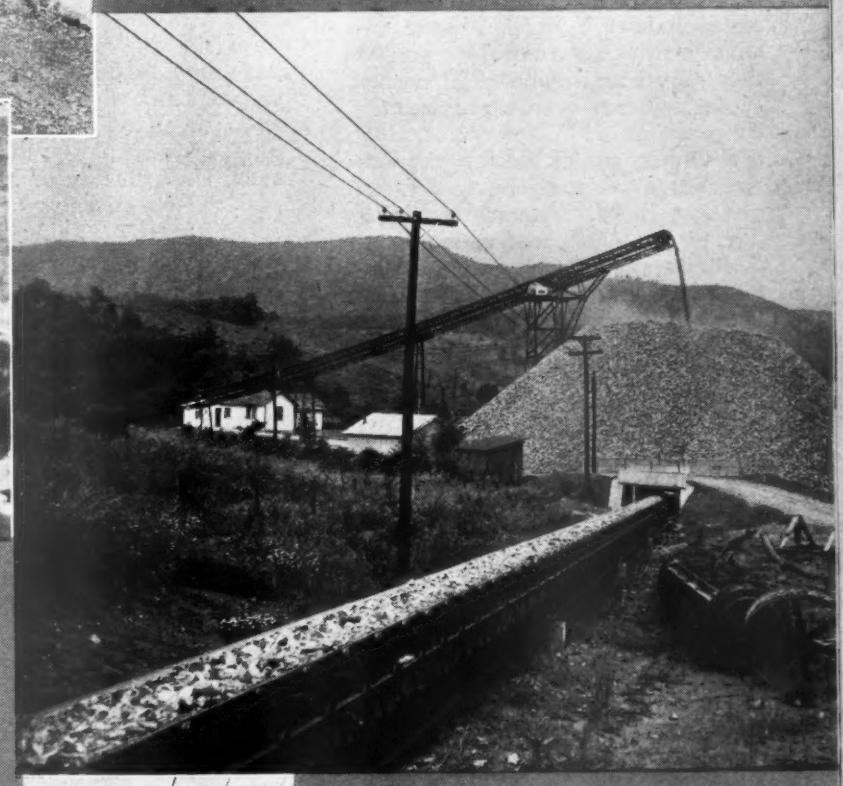
Above: Head-end view of flight No. 2 discharging into flight No. 3.

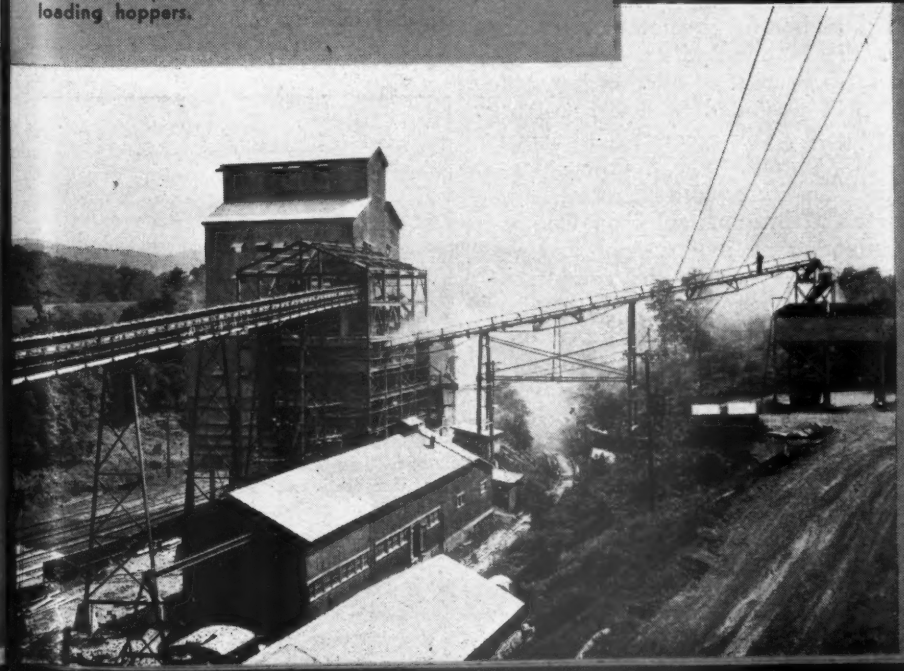


Above: Tunneling under surge pile, flight No. 4 is fed through a remote-control feeder gate.

Right: Looking back along flight No. 4. Flight No. 3 is in background.

Below: Flight No. 4 terminates at finishing plant where limestone is processed. Short belt at right leads to truck-loading hoppers.





gyratory into the quarry for use as a secondary crusher. The purpose of this double reduction in the quarry was to reduce the size of the stone sufficiently so that the required tonnage could be handled on a 30-in. belt. However, due to the recent war, installation was postponed, and it was not until after the cessation of hostilities that final plans were approved and the order for equipment was placed.

The first flight of the conveyor, receives stone from the Birdsboro-Buchanan 48- by 60-in. Type C jaw primary crusher which is fed from the Telsmith 60-in. by 14-ft. heavy-duty manganese steel apron feeder. This 42-in. wide by 281-ft. centers belt conveyor immediately breaks

(*Continued on page* 128)

Figures Released at 31st Annual N.S.A. Meeting Put 1948 Slag Production at 20,000,000 Tons

another ON THE SPOT report

THE National Slag Association held its 31st annual meeting in Washington's plush Wardman Park Hotel on November 18 and 19. Like the industry which it serves, the N.S.A. recorded a successful

By JOHN R. DUBLE

year reflecting the growing importance and acceptance of blast-furnace slag as an aggregate. In his welcoming address, W. E. Bliss (Standard Slag Co.) said that in 1947 the association represented interests producing nearly 80 percent of the industry's 19,500,000-ton annual output. Authorities predict that the annual commercial output of slag will run in excess of 20,000,000 tons in 1948.

Sounding one of the few cautionary notes of the entire two-day meeting, E. W. Bauman, managing director of the N.S.A., pointed out in his annual report to the association that approximately 12,000,000 tons of slag were wasted in 1947, over and above that tonnage which was reclaimed. The wasted tonnage, he said, stands out as a challenge to this group for its reclamation. Further expansion of the slag industry can come about through promotion slanted to extend the present uses of slag, plus a research effort devoted to the development of new uses and a broader field for present applications.

Mr. Bauman recommended two activities which he hoped the Association would sponsor in the future, the first being a safety contest for employees within the plants of the industry, and the second, a physical and chemical analysis of each

• Fred Hubbard, consulting engineer, Standard Slag Co., N.S.A. director of research; H. N. Snyder, vice-president, Buffalo Slag Co.; L. E. McDermut, president, Illinois Slag and Ballast Co.

• E. L. Flad, president-elect of the National Slag Association; E. W. Bauman, managing director; W. E. Bliss, retiring president.

member's product which would be helpful to the association when called upon to deal with specification problems, whether regional or nationwide in aspect.

F. T. Moyer, chief of the accident branch, U. S. Bureau of Mines, discussed the effectiveness of a safety program in the mining industries and the value of an N.S.A.—sponsored safety contest. He outlined the steps necessary to set up such a program and passed out sample forms which individual members would use in reporting accident records to the Bureau. Members were receptive but definite action on a safety contest was deferred.

C. W. Josephson, chief of the nonmetallic minerals branch, U. S. Bureau of Mines, reported on the progress of the *Slag Book,* a brochure covering exhaustive investigations of the properties of blast-furnace slag aggregate. This book, which was jointly prepared by the Bureau and the N.S.A., will soon be available for distribution.

According to the formal report of Fred Hubbard, director of research for the National Slag Association, about 5 percent of all the slag sold in 1947 was used as a lightweight aggregate. This amounted to about 1,131,000 tons. The Southern Research Institute, with financial help from the Birmingham Slag Co., is conducting an independent investigation to determine the conditions under which molten slag will foam into a clinker suitable for processing into lightweight aggregate. No conclusions have been released as yet.

Although no conclusive observations can be made, inasmuch as investigations on the subject are not complete, evidence to date, said Mr. Hubbard, indicates that concrete block made with excessively dry mixes of slag sand will not produce a durable product capable of withstanding freezing and thawing.

Popouts in slag concrete in at least one instance have been traced to the use of oversize flux stone at the furnaces. A substitution of the proper size stone eliminated this trouble, said Mr. Hubbard.

Modern blast furnace operators can and do maintain slag control. It is to their mutual advantage therefore, pointed out A. H. Fosdick, superintendent of the Bethlehem Steel Company's blast furnace department for members of the slag industry to maintain close contact with their counterparts in the steel business. He gave an informative talk, illustrated by slides, on the mechanical operation of the modern blast furnace.

W. E. Callahan, manager of the car service division, Association of American Railroads, expects 1949 to set new highs in the movement of material in open hopper cars. At the present time, he said, the shortage of this type of car has been considerably alleviated due to the curtailment of coal exports. Next year an additional 4000 cement cars, now on order, will be put into service with the 15,500 such units now in operation. In the next 10 years, he said, approximately 40,000 closed hopper cars will be in service as the uses for this type of unit have been expanded to include 86 different commodities.

Other prominent men who spoke during the two-day convention included A. H. Hale, executive secretary of the American Assoc. of State Highway Officials, and Reuel

(*Continued on page* 128)

• C. A. Barinowski, sales manager, Birmingham Slag Co.; Charles Ireland, executive vice-president, Birmingham Slag Co.; C. E. Ireland, president, Birmingham Slag Co.

Report on Current Labor Developments

By S. HERBERT UNTERBERGER

Fate of the Taft-Hartley Act

WHAT will happen to the Taft-Hartley Act monopolizes every discussion about labor developments these days. On this point, the only accurate report is that, at this time, there has been no crystallization of constructive thinking on what a new law should contain. Even the labor leaders — who have claimed the lion's share of the credit for the Democratic victory — are agreed only that the present law must go and that, at least temporarily, the old Wagner Act should be reinstated. No similar agreement exists with regard to any other legal provisions for regulating labor relations. The Administration and Congressional leaders agree neither with the labor leaders, nor among themselves.

In handling their day-by-day labor relations problems and particularly when negotiating new labor agreements, business men are concerned not only with what the new rules are likely to be but even more with the question of when any new law is going to become effective. What demands to make in a bargaining session and what to agree to will often depend on their estimate of when the legal requirements will change.

How Soon Will There Be a New Labor Law?

There seems to be no question but that Congress will consider the repeal or a substantial amendment of the Taft-Hartley Act. But when? Conceivably this could be made the first order of business and rushed through Congress shortly after it convenes in January. However, such speedy action would involve quite a marked departure from customary legislative experience. Unless it receives very extraordinary treatment, repealing or amending legislation will have to pass through the same time-consuming steps as any other bill. These are:

1. Drafting and introduction of bills in one or both chambers of Congress.
2. Referral of bills to the Labor and Public Welfare Committee of the Senate and to the Education and Labor Committee of the House.
3. The holding of hearings by the respective committees.
4. The preparation of committee reports.
5. Debate on the floor of the House and of the Senate.
6. Conferences between committees of the House and of the Senate in the event of passage of different bills by each chamber.
7. Preparation of the conference report and consideration of that report by the Senate and House.
8. President's signature, or the possibility of a veto if the legislation is unsatisfactory.

Furthermore, it is probable that any law which passes will provide some lag between the date of its enactment and the date of effectiveness of some of its provisions, for the purpose of preparing administrative machinery and in order to avoid hardships in partially completed negotiations.

It may be helpful to recall that the 80th Congress took a number of months to enact the Taft-Hartley Act even though it had a clear-cut majority in favor of such legislation. It was not until June 23, 1947, (five months after Congress convened) that the Taft-Hartley Act became law, and most of its provisions were not applicable until August 23, 1947 (and in respect to some labor contracts some provisions are not yet applicable). It could certainly take as long to enact a law which would replace the Taft-Hartley Act.

It should also be kept in mind that the Taft-Hartley Act might not receive the highest priority on the legislative calendar. Amendments to the Wage and Hour Law and proposals for Federal aid to education will be competing for the attention of the same committees. It is quite likely therefore that the Taft-Hartley Act may be with us for another six months. In the meantime, it is being enforced with continued vigor by the National Labor Relations Board and its general counsel and by the courts. Businessmen and labor leaders are required to observe its provisions or run the risk of suffering its penalties.

The A. F. of L. and C. I. O. Conventions

The two large labor federations, the A. F. of L. and C. I. O. have met in recent weeks. With the increasing importance of labor unions on the national scene, the deliberations of these bodies should not be overlooked. Out of the 50 million non-agricultural employees, 16 million belong to labor unions, or 1 out of every 3 workers is a union man. In addition, unions have achieved increasing political strength over the last decade, which was very well demonstrated in the last election.

Both federations came out for the repeal of the Taft-Hartley Act and the reinstatement of the Wagner Act. Also they both want a sizable increase in the minimum wage, an extension of Social Security, as well as aid to education, housing and slum clearance.

The A. F. of L. convention took a long step when it put its political arm, Labor's League for Political Education, on a permanent basis. Encouraged by its recent successes, the convention authorized the raising of $700,000 for political education purposes and has affirmed its intention of becoming involved not only in Presidential elections but also in off-year Congressional elections and in state and local contests. This is a marked departure from its past policy of remaining relatively neutral except for an announcement of the candidates it endorses. The A. F. of L. League for Political Education, together with the C. I. O.'s Political Action Committee and Railway Labor's Political League, brings into existence a new and formidable team, which will influence elections and legislation.

The C. I. O. convention was marked by its outspoken attack on the Communist-dominated unions within its ranks, particularly because of their failure to enlist large numbers of workers in the areas over which they have jurisdiction. If these unions fail to do a better organizing job, it appears likely that the C. I. O. will permit its other unions to invade their fields. The danger to employers of such a development is that they may be caught in a cross-fire between a Communist-dominated union and a non-Communist union, both trying to organize their employees, perhaps agitating, calling strikes, etc.

New Wage Increases

A demand for further wage increases is also high on the agenda of labor union activities. There are three standard arguments for wage increases, each of which is emphasized at different times. They are: (1) that the cost of living has risen, (2) that the output of the workers

has increased, (3) that profits are large enough to finance them.

If the present stability of prices continues, less will be heard of the first of these arguments. The Bureau of Labor Statistics' Consumers' Price Index has remained practically unchanged since July.

The same Bureau has studied the output per man-hour of workers in 32 industries. Regrettably, such important industries as automobiles, lumber and furniture, tires and tubes, steel and textiles have not been covered. Of the industries studied, however, two-thirds showed an increase in output per man-hour between 1939 and 1947; in one-third of the industries, the increase exceeded 10 percent. Between 1941 and 1947 output per man-hour also increased in about two-thirds of the industries. At least in the industries where output has increased, that argument for a wage increase will most certainly be pressed.

But most publicity is sure to be directed at profits. In corporate profits alone, after all taxes have been paid, there has been an increase of 3 billion dollars over the last year, amounting to more than 20 percent. Since 1939 or even 1941 the increase has been very much greater. Labor will certainly argue that it should receive a share of this amount.

Some industry spokesmen, most prominently Henry Ford, have conceded that labor unions will again win wage increases next year.

Picketing

The Taft-Hartley Act enlarged the concept of unfair labor practices to include certain types of activities by labor organizations. As a result picketing which prevents entry or egress from a strike-bound establishment became an unfair labor practice since it was an interference with an employee's right to engage or refrain from engaging in concerted activity.

This principle is illustrated by two recent cases on which National Labor Relations Board trial examiners have handed down opinions. In the first the union was found to be guilty of a violation of the law when between 1500 and 2000 union members, not all of whom were members of the union conducting the strike, demonstrated in front of the struck plant in what was described in hand bills as a "Taft-Hartley demonstration." While the facts appear to indicate that this demonstration was entirely peaceful the trial examiner, nevertheless, found that "its obvious purpose may have been to demonstrate in protest; its necessary effect was to prevent ingress and egress at the plant by sheer force of numbers." He went on to say, "Employees, willing to cross a picket line, are not required to wait a fortuitous breach in the line, and to so time their entrance or exit as to avoid encounter with the pickets." He therefore came to the conclusion that these picketing activities of the union interfered with the employees rights.

In the other case certain employees refused to enter a plant because the plant was being picketed. While at the starting hour there were sometimes as many as twenty pickets in front of the gate, at other times there were rarely more than 3 to 5 pickets. The trial examiner found that "the pickets did not attempt to prevent entrance through the gate; indeed, they specifically informed Ryan's men that they were to pass through if they so desired. Moreover, the evidence discloses that employees could enter by going around the picket line." In view of these facts the trial examiner found that the union was not in violation of the provisions of the law.

These cases point up the conclusion that it is not the number of pickets which are marching in front of the plant that determines whether the union had violated the provisions of the law, but rather whether the number, combined with their actions, either threatened or real, results in preventing workers who want to work in the plant from entering or leaving the plant.

Rubber Railroad

(*From page* 125)

into a vertical curve to a 5-degree slope and rises a total of 62 ft. to discharge into the previously mentioned No. 12K Gates crusher, which is now used for secondary reduction. This reduces the stone to about 5 in. and also serves as a regulator to take out surges from the primary crusher. The primary crusher is driven by a 200-hp. slip-ring motor, and the conveyor by a 40-hp. General Electric gear-head motor.

Flight No. 2, utilizing a 50-hp. General Electric gearhead motor, as does the following flight, is 30 in. wide and 1,063 ft. long, and operates at a speed of 275-ft. per min. This conveyor also rises in a vertical curve from its loading end, a total of 58-ft., and discharges into the next conveyor.

This third conveyor is 30-in. wide by 844-ft. long and also operates at a speed of 275-ft. per min. Loaded on a level, this belt passes under U. S. Highway No. 460 and then rises in a vertical curve of approximately 1,000-ft. radius to effect a total lift of 57-ft. to discharge onto the stockpile. This has a total capacity of 9,000 tons, of which about 2,000 tons are in constant flow.

Reclaiming flight No. 4 is fed by a Jeffrey No. 5HM feeder in a concrete tunnel under the stockpile. The rate of feed is regulated by rheostat control at the discharge end of the belt at the final sizing, crushing and screening plant. Operating at 250-ft. per min., it has a total rise of 35-ft. and is 30-in. in width and 1,610-ft. in length.

All conveyors in this installation were manufactured by the Barber-Green Co. and sold by the Rish Equipment Co. of Roanoke, Va. The belt installation is well supplied and engineered by the Goodyear Tire and Rubber Co.

At the quarry working face, which is 200-ft. high, two steam shovels are used to load blasted rock into four Euclid Model 36FD dump-trucks powered by 150-hp. Cummins diesel engines. The trucks operate on a maximum of about a 1,500-ft. haul and carry 400 t.p.h. to the crusher without difficulty. An International TD-18 angledozer is used for clearing operations.

National Slag Meeting

(*From page* 126)

W. Elton, general manager of the American Trade Assoc. Executives, who spoke at the annual banquet. A watch was also presented at this banquet to Mr. Bauman in appreciation of his work.

The new officers of the N.S.A. are as follows: president, E. L. Flad (Slag Division, Carnegie - Illinois Steel Co); vice-president, G. A. Mattison, Jr. (Woodstock Slag Corp.); managing director and secretary, E. W. Bauman; treasurer, W. S. Shaw; executive committeemen at large, C. E. Ireland (Birmingham Slag Co.); W. E. Bliss (Standard Slag Co.); L. E. McDermut (Illinois Slag and Ballast Co.).

New Corporation to Operate Sand-Gravel Plant in Avon, O.

According to an announcement made by Charles Markham, president of a new corporation producing concrete and masonry sand and gravel at Avon, O., equipment is being installed at the new plant, and operation will begin in the near future.

Other officers of the company are Ed Nemeth, vice-president; Art Nemes, secretary-treasurer; George Karkelli, manager.

• A general view of the Southern Lightweight Aggregate Corporation's new plant, located near Bremo Bluff, Va. The conveyors in the foreground are for the closed circuit used in both raw- and finished-crushing.

Solite Aggregate

Southern Materials Affiliate Produces New Lightweight Product near Richmond

another ON THE SPOT report

WITH demand for lightweight aggregate currently soaring in the neighborhood of 7,000,000 cu. yds. per year, as against actual production of approximately 2,250,000 cu. yds. per year, the announcement of an important new producing plant is unquestionably news of first rank importance. Such, at any rate, was our immediate reaction when we learned several months ago that production was underway at the Bremo Bluff, Va., plant of Southern Lightweight Aggregate Corp., an affiliate of the Southern Materials Co., Inc., of Richmond. A cordial invitation from John W. Roberts, president of the new company, to come and see for ourselves resulted in a quick trip and a day-long visit at the plant, located about 60 miles due west of Richmond.

By WILLIAM M. AVERY

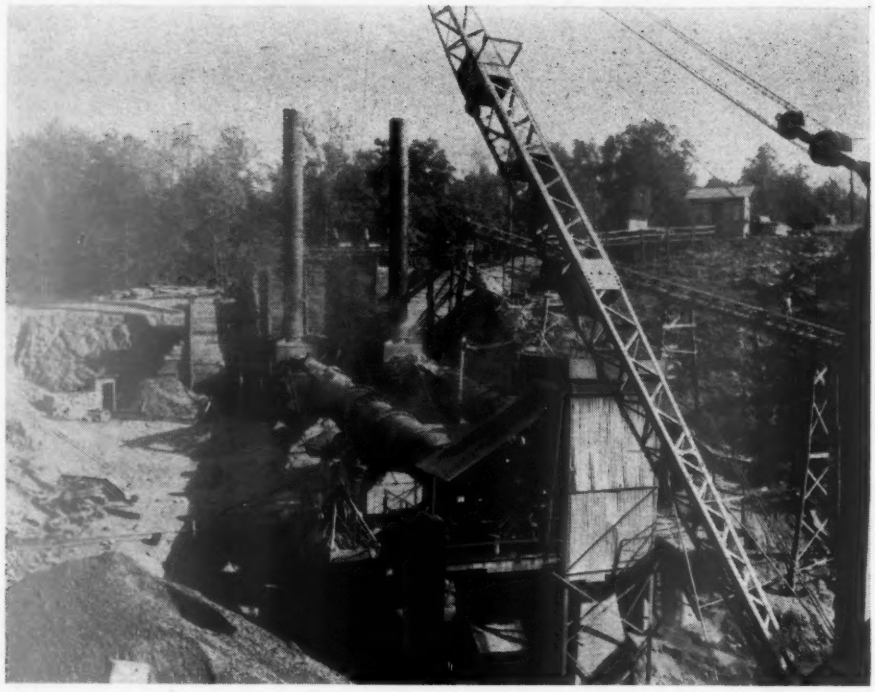
Solite, the rather apt trade name adopted by Southern for its lightweight aggregate, bears a close resemblance to haydite in chemical and physical properties, and its performance in concrete is said to compare very favorably with that material. It is a very light, cellular, inert, burned slate material which weighs around 57 lbs. per cu. ft. when loaded for shipment. Its dry compacted weight runs about 5 lbs. higher, or close to 62 lbs. per cu. ft. Standard 8- by 8- by 16-in. concrete masonry units, incorporating Solite for both coarse and fine aggregate, average close to 28 lbs. per unit, or from 85 to 88 lbs. per cu. ft.

Before final selection of a site for the plant Southern carried on an exhaustive investigational program, in the course of which materials from 46 different deposits were processed and thoroughly tested in concrete. The materials tested came from deposits located in Virginia, West Virginia, North Carolina and Tennessee, and pilot processing operations were carried out in a plant located in New Jersey. On the basis of quality alone the field was first narrowed down to four sites, and final selection was based on the best material within shipping distance of large consuming centers.

The deposit ultimately chosen consists of a shaly-slate material having the following chemical analysis: silica 55 to 60 percent; alumina 25 to 30 percent; carbonates and other oxides 10 to 15 percent.

The company controls about 190 acres of the deposit in a mile-long strip which is being worked on a face 300 ft. in width. Mining operations in the locality have been carried on at depths of 500 ft., but Southern's operations will be concerned only with material relatively close to the surface. The increased density of the slate found at greater depths makes it unsuitable for economical production of lightweight aggregate. Overburden, consisting

• The deposit is currently being worked on a 300-ft. face. Dump trucks are loaded with a ¾-cu. yd. diesel shovel.



• A view of the two 6- by 100-ft. rotary kilns now in operation. Two identical units will be installed in the area to the left. It is expected that the third kiln will be in operation by June 1, and the fourth several months later.

largely of eroded slate with some clay folded down into it, varies from 4 ft. to as much as 15 ft. in depth. Stripping is done with a LeTourneau tractor-drawn pan, the depth of cut being primarily determined by the hardness of the material encountered.

Since the material is very nearly on edge, all the blasting is done with snake holes, driven with 4½-in.-diameter wagon-mounted worm-type drills. Air is supplied by a Schramm portable compressor. An average shot consists of about a dozen holes, spaced approximately 12 ft. apart and charged with 4- by 16-in. 40 percent dynamite. The slate fractures readily, and a single blast brings down sufficient material to run the plant about two months. To date there has been little need for secondary blasting. Loading at the face is done with a ¾-cu. yd. Northwest diesel shovel, and two 3-cu. yd. Ford end-dumps are used for the 1,000-ft. haul to the primary crusher.

A single crushing and handling circuit is used for both raw and finished crushing the plant having been designed for a ratio of 6 hours on raw crushing to 4 hours on finished. The primary crusher, a 17- by 54-in. Kennedy-Van Saun gyratory, is arranged in closed circuit with a 4- by 12-ft. double-deck vibrating screen. The 30-in. connecting conveyor, a 24-in. return and a 24-in. stockpiling conveyor were all furnished by Barber-Greene. All oversize material (plus ½-in.) is recrushed in a No. 49 Kennedy-Van Saun gyratory located under the screen before returning to the primary.

• Left: This simple switch, developed at the plant, touches off an alarm whenever there is an interruption in the flow of raw stone to the kilns.

• Below: Air for drilling is supplied by this portable compressor.

The raw feed is stored behind a retaining wall opposite the feed end of the two rotary kilns. Flow from this raw stockpile is by gravity onto separate inclined belt conveyors which feed the kilns. There is sufficient raw storage capacity to operate both kilns about 2½ days without grinding additional material from the quarry.

The kilns themselves were purchased used from one of the cement companies, and their length as installed (100 ft.) was based on cement-mill practice. It was almost immediately found necessary to shorten them to 60 ft., and the remaining 40 ft. (non-rotating) at the stack end was for a time used simply as additional stack. More recently one of the kilns was converted back to the full 100 ft. length, and the other will be changed in the near future. The kilns are 6 ft. in diameter and they slope ⅞ of an inch per foot. Speed is variable up to 1½ r.p.m. but under most operating conditions it averages close to 1 r.p.m. At this speed the slate is retained in the kilns for approximately 40 minutes. Linings consist of 6-in. Harbison-Walker kiln brick for the entire length.

All the burning equipment was designed and furnished by Kennedy-Van Saun. Firing is with pulverized coal from a single 5- by 6-ft. Kennedy-Van Saun closed circuit air-swept mill which has a capacity of 5,200 lbs. per hour. Raw coal is fed to a 15-cu. yd. storage bin above the mill with the same stiff-leg derrick used for feeding clinker to the grinding circuit. The coal is dried in the mill with heat drawn from the kiln hoods. Fuel consumption is at an average rate of about 300 lbs. of coal per cubic yard of finished product.

In the first zone of the kilns the shaley-slate particles are preheated and some of the moisture is driven off. About half way through a vitreous coating begins to form over the surfaces of the particles. Sealed in by this coating the gases gen-

erated by chemical changes in the material cause it to expand into clinkers which contain countless small cells. Thus the actual expansion seems to take place in the zone of maximum temperature, from 10 to 20 ft. from the discharge end. Normally, the kilns are operated at temperatures varying from 2,500 to 2,600 deg. F., but wider variations are sometimes necessitated by differences in the chemical composition of the raw material. At times it has been necessary to run the temperature up to as high as 3,000 deg. F. for short periods. Other variables which seem to have a direct bearing on the quality of the expanded material are fuel-air ratio, draft, direction of flame, and time in the kilns.

In the early stages of the operation it was found that a raw feed consisting of almost pure slate had a tendency to stick to the kiln linings, causing rapid formation of rings. After much experimenting, the best solution for this difficulty proved to be the inclusion in the feed of eroded slate from the top of the deposit. With this blended material, which is brought down with the regular quarry blasts and loaded along with the slate, little trouble is encountered with sticking.

The company's original goal was to produce about 125 cu. yds. per day in each kiln. At the time we visited the plant the average had been brought up gradually to about 100 cu. yds. per kiln. We are now advised that hooking up the full 100 ft. in one kiln has brought production in that unit up to an average of 150 cu. yds. per day. This compares favorably with production in the very best haydite operations, matching Carter-Waters' goal at the New Market, Mo., plant, which went into operation in May, 1948.[1] Southern is currently carrying on some experimental work which may result in a further increase—possibly as much as 15 percent. Currently, with two kilns operating 24 hrs. per day, the company is able to ship about four cars daily—cars ranging from 50 to 80 cu. yds. each.

The Bremo Bluff plant design was actually based on a 4-kiln operation. Since most of the equipment and materials for this expansion are on the site, it is expected to have the third kiln in operation by June 1st of this year, and the fourth in service several months later.

Clinker is discharged from the kilns into an open pit, from which it is moved to a cooling storage pile by means of the stiff-leg derrick. The derrick is also used for feeding clinker to the grinding circuit, where the 24-hr. production of two kilns can be crushed and screened in 3 to 4 hours. This compares with 6 to 7 hrs. per day on raw grinding in the same circuit. The quarry is operated only one shift per day. If necessary, it will be possible to store as much as 12,000 cu. yds. of unground clinker.

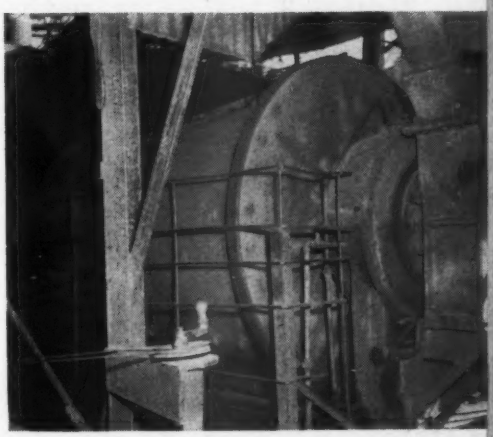
At present no size split is being made in most of the finished product, since the natural gradation of the material seems virtually ideal for the block plant users who have thus far taken a major share of the plant's output. A typical sieve analysis of Solite aggregate currently being shipped to manufacturers of concrete masonry units shows the following: 100 percent passing 3/8; 65, 36, 25, 18, 13 and 10 percents passing (respectively) Nos. 4, 8, 16, 30, 50 and 100. Railroad cars are loaded directly from the screen in the crushing circuit, and considerable care is exercised to prevent segregation. Some water is sprayed on the material at the screen, since an initial moisture content is desirable in block plant operations. So far there has been considerable production of Solite for use in monolithic concrete structures, and eventually the company plans to develop this field vigorously in connection with the parent organization's extensive ready-mixed-concrete operations. For use in monolithic concrete Solite is split into two size fractions. Considerable test data has already been accumulated on structural concrete applications.

Southern has selected its Solite

(*Continued on page* 134)

[1]See Avery, William M.: *Output of New Carter-Waters Plant Will Exceed 300 Cubic Yards Per Day.* PIT AND QUARRY, May, 1948, page 158.

• A view on the firing floor of the kilns.



• Above: The kilns are fired with pulverized coal from this 5- by 6-ft. closed circuit air-swept mill.

• Below: Raw food is stored behind a bulkhead at the end of the kilns, and flows from the storage area onto a separate feed conveyor by gravity.

Southwestern's Improvement Program In Full Swing at El Paso

By R. T. MANN
Plant Engineer, Southwestern Portland Cement Co., El Paso, Tex.

SCHEDULED improvements at the El Paso, Texas, plant of the Southwestern Portland Cement Company have been under way for the past year and will continue well into 1949. These improvements are being made in all manufacturing departments with the exception of the rock drying. Only the rock transportation and raw grinding departments, however, have undergone major changes.

In April, 1947, rock haulage from the quarry to the crusher was changed from a rail system to a truck system using three 15-ton capacity Mack trucks with end dump bodies and powered by Cummins diesel engines. While only two of these trucks are in operation at one time the amount of rock hauled per day has shown at least a 30 percent increase over the average possible with the rail system. A glade grader and a bulldozer are used to maintain the truck roads and quarry floor.

At the crusher, when using the rail system, the rock was dumped from the 6½-ton rail car directly into the 36- by 60-in. roll crusher. However, with the 15-ton truck load this was not practical on account of the danger of overloading the crusher. At first, it was tried to control dumping into the crusher by means of the truck hoist but this method was not satisfactory, mainly because it held the truck too long at the crusher and slowed its operation. It was then decided to build an attachment to the crusher hopper at grade level to permit trucks to back into, discharge the entire load, and then return immediately to the quarry. This attachment, which has acquired the name "rock skip" at the plant, is shaped somewhat like a truck body. It is hinged at the hopper end and can be raised to any desired angle by means of two hydraulic hoists attached to the other end. These hoists are operated by a Vickers V-460 rotary oil pump driven by a 20-hp. motor. The crusher operator has positive control over the skip in any position by means of an electrically-operated 4-way valve.

At the present time all secondary crushing is done with two 50-in. hammermills operating in open circuit. Equipment is on hand, however, for the addition this year of a Type F-600 5- by 12-ft. Ty-Rock screen over which will pass the product of the two hammermills. The screen will be in closed circuit with a new Pennsylvania reversible hammermill which will be used to crush the oversize from the screen. Final product will be minus ½-in. size.

In the raw grinding department the four old 6-ft.-diameter compartment mills are being replaced by four Allis-Chalmers 8-ft.-diameter by 10-ft.-long ball mills. The change is now practically completed. This was done while the plant operated at full capacity.

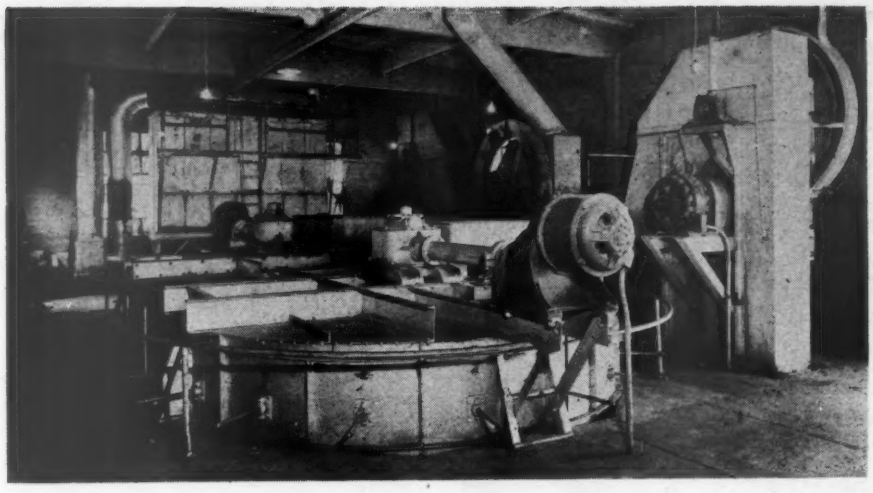
Crushed rock is received from storage and heated to about 350 deg.

• Southwestern Portland Cement Company's plant at El Paso, Tex., seen from the air. In the foreground is the Rio Grande.

F. in a 6- by 100-ft. rotary dryer. It is then distributed to one of four bins located above the feed end of the new ball mills. A Jeffrey-Traylor vibrating feeder with an 18- by 60-in. pan regulates the amount of rock going into each mill. Instead of the usual screw feeder to take the material into the mill a revolving drum, designed and built at this plant, delivers the initial feed plus all the rejects from the separator into the mill without the use of a separate motor or drive. An overload or a piece of tramp iron which would ordinarily stall a screw feeder will pass through into the mill without causing any trouble.

Each of the new mills operates in closed circuit with a 14-ft. Sturtevant separator and produces about 17 t.p.h. of 80 percent minus 200-mesh kiln feed. After the new screen is in operation at the crusher and the mill feed is minus ½-in. this output is expected to increase. The mills are driven by 350 hp. synchronous motors through magnetic clutches at about 21 r.p.m. Ball charge is 52,000 pounds and liners are 2-in. Lorain rolled plate lining. A continuous bucket elevator receives the product from the mill and delivers it to the separator. The separators are driven by 60-hp. motors direct connected by speed reducers. A special mounting feature of the separators permits the valve rods to be only 10 inches above the floor and also allows easy access to the motor and drive mechanism.

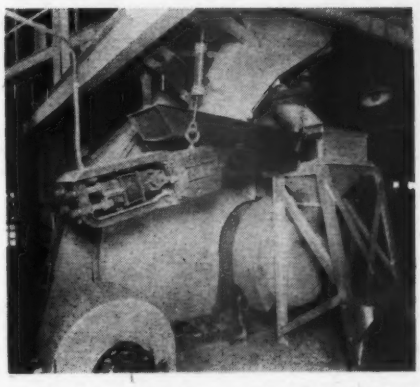
Each mill unit has its separate dust collector which is connected to the discharge end of the mill as well as the elevator and feed bin. It consists of a Size 6-3 Type 9VG Multiclone collector with a Buffalo exhaust fan. The air is then piped to the main electrical precipitator for final treatment, thus making a practically dust-free raw grinding department.



• Two of the separators in the finish-grinding department. All the separators in both grinding departments are similarly installed with special supporting legs and direct-connected drives.

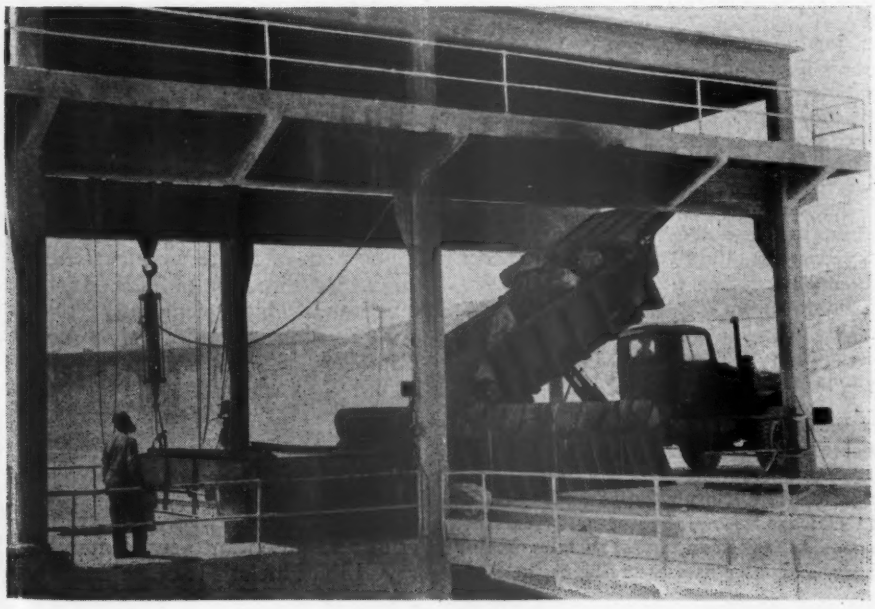
Equipment is now on hand for adding a third Fuller clinker cooler of the latest design to the No. 3 kiln. Two Fuller coolers are already in operation on the other two kilns. This installation is scheduled to start early in 1949.

Moving over to the finish grinding department we find two new 450-hp. Hytork synchronous motors driving two of the 7- by 22-ft. finish mills through new gears. These motors replaced the original slip ring motors of a higher speed. Also in the finish end a new 14-ft. Sturtevant separator is being placed on the third finish mill. Each mill will then be operated in closed circuit with its own separator. A third low power factor motor on the No. 3 finish mill is to be replaced by a synchronous-type motor operating through a magnetic clutch. After this change all mills in the raw and finish departments will be driven by synchronous motors.



• The feed end of a new 8- by 10-ft. ball mill in the raw-grinding department.

Replacements in the packing department include four new 4-tube packing machines, three of which are in operation. These are to be equipped with surge bins fed by automatically controlled 11-in. feeders to maintain a constant head of cement over the packers.



• Left: One of the new 15-ton end-dump trucks dumping a load into the rock skip.
• Below: The rock skip discharging the same load into the roll crusher.

personal mention

C. E. Wuerpel

CHARLES E. WUERPEL, former chief of the Concrete Research Division of the Corps of Engineers, U. S. Army, and distinguished concrete construction authority, has been appointed technical director on the executive staff of Marquette Cement Manufacturing Company. From the Marquette general offices in Chicago he will supervise control over the quality of the company's products and direct its staff of service engineers on all matters relating to the use of cement.

Mr. Wuerpel was for 19 years employed by the Corps of Engineers. During that period he planned and executed major research projects dealing with the development and use of concrete. In the past 12 years he has compiled 55 reports and articles on the subject and has lectured on concrete technology at the United States Military Academy, at Harvard and New York universities and at Kansas State College. He recently returned from Argentina, where the Province of Buenos Aires awarded him its Medal for Distinguished Service in Technology for scientific work done there last year.

Mr. Wuerpel is a member of the American Society for Testing Materials and of the American Concrete Institute. The latter group awarded him the Wason Medal for noteworthy research for the year 1946.

MELVIN H. BAKER, president of the National Gypsum Company, has been appointed to an Erie County (N. Y.) industrial committee, which will promote thrift among employees by securing larger enrollments in the payroll savings bond plan.

ALBERT M. ANDREAS, who recently purchased controlling interest in North American Cement Company, New York, has been elected chairman of the executive committee and a director of the company. North American has four plants located at Catskill and Howes Cave, N. Y.; Hagerstown, Md.; and Berkley, W. Va.

Mr. Andreas operated Northwest Linseed Company, Minneapolis, as its president from 1941 until September 30, 1947, when he sold the company. Prior to that time he was connected with Honeymead Products Company in Cedar Rapids, Ia. No changes are anticipated in the present management of North American Cement.

C. A. FRANKENHOFF and A. G. FRANKENHOFF have formed a new company, Frankenhoff Corporation, for research, development and distribution of nonmetallic minerals. C. A. Frankenhoff is president of the concern, which will maintain offices in the Chrysler Building in New York City.

D. S. Colburn

D. S. COLBURN, vice-president of Marquette Cement Manufacturing Company, conducted the ninth in the bi-weekly series of management conferences being held this winter at the five Marquette plants as a part of the company's management development program. Speaking informally to foremen's groups, he discussed company growth and policy and local plans for future development.

Having risen through the ranks since joining the Marquette sales force in 1924, Mr. Colburn is an example of employee opporunity in the organization.

obituaries

ALBERT F. HYDE, chairman of the Consolidated Quarries Corporation board of directors, died at his home at Chappaqua, N. Y., on November 18. Mr. Hyde was 85 years of age. He had been head of the Atlanta (Ga.) firm's board since 1935.

JOHN S. GALT, proprietor of the Keystone Trap Rock Company, which operates quarries at Cornog, near Downingtown, Pa., died at his home in West Chester, Pa., after a long illness. He was 67 years of age.

JOHN H. AGEE, secretary-treasurer of the Oliver King Sand & Lime Company of Knoxville, Tenn., died in that city on October 6. Mr. Agee has been associated with the sand and lime concern for the last 30 years.

At Lambertville, N. J., rescue workers recovered the body of EDWARD S. SNYDER in the Lambertville Quarry Company's quarry after a 10-day search. The victim, an employee of the concern, was buried under a slide of 200,000 tons of rock which also killed another employee, RAYMOND WELLMAN.

F. L. JAEGER, vice-president of Marquette Cement Manufacturing Company at the time of his retirement six years ago, died on November 14 at his home in Chicago. Mr. Jaeger was 70 years of age. As salesman, general sales manager, and later as vice-president, he had been with the Marquette company for 30 years at the time of his retirement from business in 1943.

Solite Aggregate

(*from page* 131)

customers with considerable care in order to be certain that only the best quality lightweight units will be produced with this material. Users can market masonry units under the Solite name if no other aggregates are used in their production. As compared with yields for most manufactured lightweight aggregates of around 55 blocks per cu. yd. of aggregate, it is claimed that Solite yields from 72 to 78 blocks per cu. yd.

Geological and laboratory investigations in connection with the development of Solite were carried out under the direction of T. B. Hartless, director of engineering and research for Southern Lightweight Aggregate Corp., in cooperation with Raymond S. Edmundson, assistant geologist of the Virginia Geological Survey, Charlottesville. A. C. Ford is director of sales for the company. At the plant A. F. Old and R. F. Gibson are respectively superintendent and assistant superintendent, and J. T. Nuckols is office manager.

new machinery and supplies

PIT AND QUARRY

● Shovel—Dragline—Clamshell

The Lima Shovel and Crane Division, Lima-Hamilton Corporation, Lima, Ohio, has developed a new machine, the Type 1002, for shovel, dragline, clamshell and crane operations.

This type, like its predecessors, is equipped with a "Precision" air-control system. Air is utilized for operation of the hoist, crowd and retract, drag, swing and propel, boom hoist, steering, swing lock, shift from swing to propel, and engine-clutch shifter functions. The truck lock and hoist brakes are mechanically controlled.

Two six-cylinder diesel power plants are available for this machine. The engine clutch is a friction disc unit, the engagement of which is controlled by air. A roller chain transmits power from the engine to the operating machinery.

The shovel boom is of welded box construction, with flared base to prevent sidesway. It is available in two lengths, one for standard operation and a longer one for high-lift operation. The dipper handle is of the inside tubular type with foot casting, multiple sections of racking, and handle welded into a unit. The standard shovel boom is 28 feet long with a 21-ft. handle. The high lift has a 45-ft. boom and a 32-ft. handle. The shovel is a chain crowd. The crowd chains and retract chain operate from sprockets attached to the left-hand hoist drum and the left-hand hoist brake serves as a crowd brake. The dippers are full capacity, 2½ cu. yds. for the standard shovel and 2 cu. yds. for the high lift.

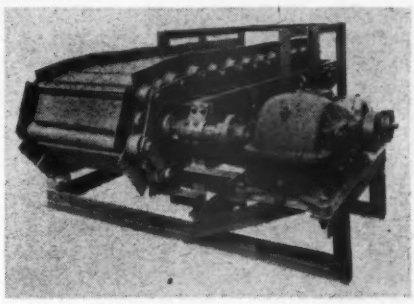
The basic dragline, clamshell, and crane booms can be lengthened by the addition of inserts of various lengths. These are butt connected. The booms are lattice type and of all welded construction.

Dragline capacities vary, depending on the length of the boom and the nature of the work. Most assemblies are available for various lengths of booms. The capacity of the machine as a crane is 60 tons at a 12-ft. radius.

The Link-Belt Co. of Chicago has announced production of its new Size H-6 variable speed changer, which is rated at 20 to 25 hp. For speed ratios of 5 to 1 and 6 to 1, the H16 unit is rated at 20 hp; at 25 hp for speed change ratios of 2 to 1, 3 to 1 and 4 to 1. It is made only in a plain horizontal assembly with the housing split horizontally.

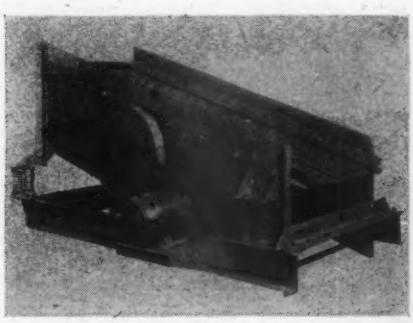
● Heavy-Duty Pan Feeder

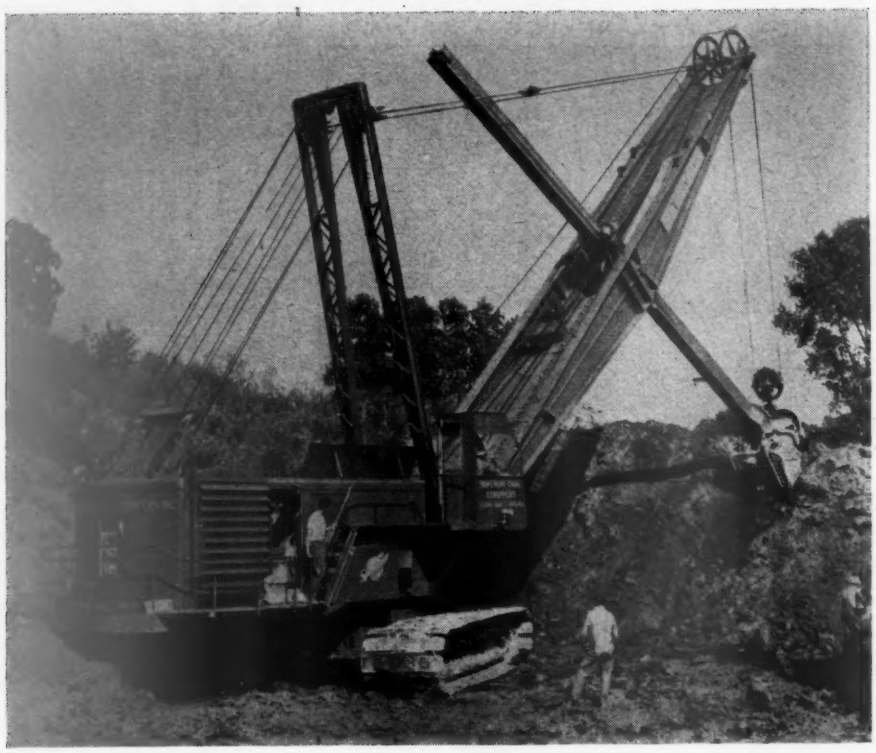
A pan feeder built and recommended for heavy service has been announced by Frank A. Kremser and Sons, Inc., 3425-45 North 5th St., Philadelphia 40, Pa. Specifications are as follows: 12-in. channel iron frame; 4- by 4- by ½-in. angle iron supports; ⅜-in. steel pans reinforced with 3- by 3- by ⅜-in. angle on bottom and 3-in. oak planks and ⅜-in. steel channels on top; ¼-in. steel side joggle plates; ⅜- by 3-in. steel link chain; 1½-in. steel shafts; 6-in. dia. cast iron wheels with hardened rim and bronze bushings; heavy double screw take-ups with bronze bushings; and steel cut sprockets. Weight is approximately 12,000 lbs.



● Vibrating Screen

The new "Telesmith Vibro-Screen" is available in either the single- or double-deck models. The screen pictured here is the single-deck unit with a steel motor suport and a variable speed V-rope drive. The two-bearing, vibrating, automatically spring-balanced, fully-enclosed counterweights constitute its outstanding feature. Manufactured by the Smith Engineering Works, East Capitol Drive, Milwaukee 12, Wis.





● Combination Unit

Manitowoc Engineering Works, Manitowoc, Wis., has introduced a new 5-cu. yd. size "Speedcrane," the Model 4500, which is available as a clamshell, dragline or shovel.

The machine handles a 4-yd. heavy-duty drag bucket on the 140-ft. boom, or a 5-yd. bucket on a 120-ft. boom. Although equipped with 25-ft. crawlers and 60-in crawler treads, the machine can be shipped by removing only the crawler frames and the operator's cab, and can be unloaded and ready to work in from 3 to 5 days. The machine is diesel-powered, with friction clutches, and is air-controlled throughout. As a shovel the machine handles a 60-ft. high-lift boom with a 3½-yd. dipper or a 30-ft. standard boom with 5-yd. dipper.

● Wire Rope Slings

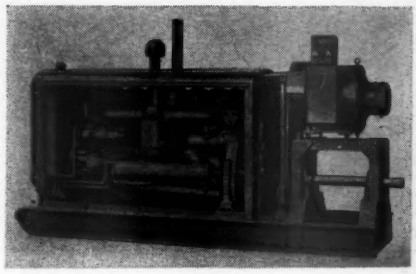
Hercules flat-laced wire rope slings were introduced by A. Leschen & Sons Rope Co., 5909 Kennerly Avenue, St. Louis, Mo., in the early part of 1948. Their design is said to provide greater flexibility, more resistance to kinking, easier handling, larger and smoother supporting area.

Flat-laced slings can be used singly, or by attachment to rings or other suitable fittings they can be made into multiple-legged bridle slings, choker slings, basket slings, etc. All types of standard and special fittings—such as rings, links, hooks, equalizing thimbles — can be employed in their assembly.

● Diesel Power Unit

The "Mech-Elec" power unit, designed for use with portable rock crushing and gravel plants, has been announced by the Murphy Diesel Co., 5317 W. Burnham St., Milwaukee 14, Wis. This power unit will deliver electric power at all times while the engine is running up to speed. The generator drive is entirely separate from the power takeoff shaft. The clutch is a large 22-in. clutch, and the power takeoff shaft is driven through a husky universal joint. There is space for a big flat belt pulley or "V" belt sheave (up to 20-in. diameter and 19-in. face width) and also a shaft extension so that the power can be taken off through a Spicer or similar universal joint shaft.

The Mech-Elec power unit is designed to furnish flexible and economical power in any job where there is a sizable major load which can be belt- or propellor-shaft-driven and an assortment of minor loads where electrical power is better than a group of small mechanical drives. It can simultaneously furnish energy for lighting and for electric tools.



The power unit illustrated is model ME-66 engine, rated at 150 hp. continuous, 180 hp. intermittent at 1200 rpm. The generator is an Electric Machinery Manufacturing Company, 50-kw. capacity, enough to drive 55 hp. in motors of 85 percent average efficiency.

The accompanying photographs illustrate the use of the gasoline-powered Hyster Model 20, with scoop attached, in unloading a freight car of bulk lime. In No. 1 the operator has driven a 6½-cu. ft. scoop-equipped "20" into the car. He will tilt the hoisting mechanism backward to prevent spillage.

No. 2 shows the operator backing out of the car, with the load raised 1 ft., to traverse the ramp from the car to the warehouse.

No. 3 was snapped as the operator swung the truck into dumping position. Trunnion steering, a feature of Hyster lift-trucks, makes possible the "20's" 5½-ft. turning radius.

In No. 4 the scoopful of lime is dumped manually as the operator releases the spring-catch device with a rope control. The scoop is automatically reset to loading position by lowering it to floor level. With the "20" the unloading time of a carload of lime has been reduced from 96 man-hours (four men) to 14 man-hours—an impressive argument in favor of mechanization.

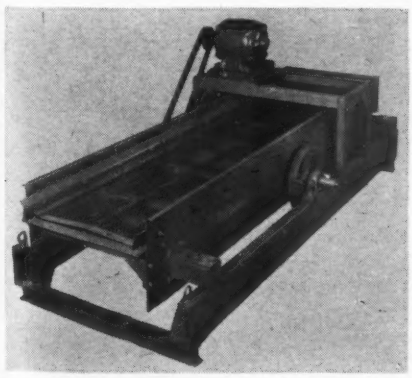
● Rear-Dump Rock Wagon

A new rear-dump wagon—the E-16 "Tournarocker"—has been announced by R. G. LeTourneau, Inc., Peoria, Ill. Designed to be loaded by shovel or dragline, the Tournarocker is powered by the new 150 HP Model C "Tournapull."

This new wagon has a struck capacity of 16.5 cu. yds. or 16 tons. Its wide top opening and low body, only 6½ ft. high, permits easy spotting at shovel. The load is carried down between the wheels, giving a low center of gravity for greater stability.

Positive power electric steering, plus a 90 deg. turning radius, make the unit highly maneuverable. Able to turn around in a 12½-ft. radius, it has no difficulty operating in cramped dump areas.

The tournarocker end-dumps material behind its rear tires. Dumping is done by locking the brakes on the rear wheels at the edge of the dump and raising the bowl by means of a "Tournatorque" electric motor and cable attached to the bottom rear of the bowl. This pulls the prime mover back towards the rear wheels, tips the bowl and dumps the material. Electric motor cable control also allows the Tournarocker to dump while traveling.

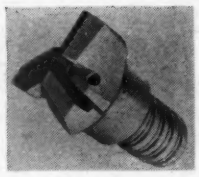


● Single-Deck Screen

The Screen Equipment Co., Inc., 1752 Walden Ave., Buffalo 21, N. Y., has brought out a new, light-duty vibrating screen for general industrial use. Designated as the series "O," this model will handle tonnages up to 25 t.p.h. The shaft has a 3/16-in. maximum amplitude and an operating speed of approximately 1100 to 1150 r.p.m., with a 3/32-in. eccentricity.

The unit will be made in 18- and 24-in. widths, 4-, 6-, and 8-ft. lengths, with single or double decks. Tripe-deck units will be made in smaller sizes.

● Drag Bits



Drag bits are commonly used for drilling through medium-hard substances such as shale, slate, medium-hard limestone and other similar materials which frequently occur in the formations being investigated in exploratory work.

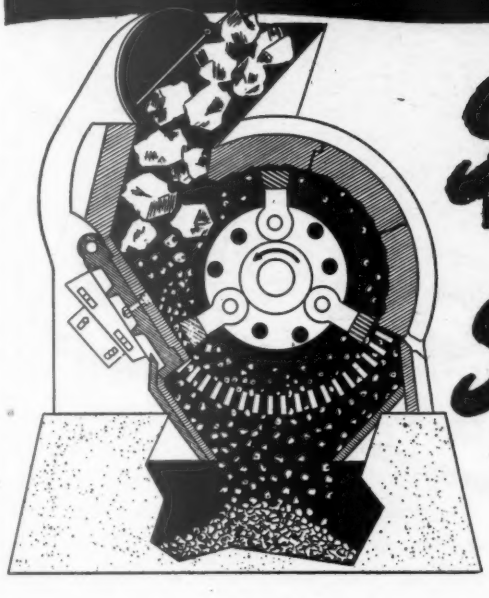
The Kennametal drag bit can be used economically to complement the diamond drill bit, the latter being employed for drilling extremely hard material and the Kennametal bit for drilling less hard substances. Manufactured by Kennametal, Inc., Latrobe, Pa.

● Lime Spreader

The Hercules Steel Products Corp., Galion, O., has placed on the market a lime and fertilizer spreader which will distribute material over a field in any predetermined given quantity from 100 lbs. per acre to 6000 lbs. per acre. The unit will spread either wet or dry material evenly over an area of 20 ft. wide with practically no dusting.

The rate of discharge is controlled by a sliding gate in the rear of the welded steel hopper-type body. Spreading is accomplished by an endless chain conveyor operating over a tapered plated which is mounted just below the discharge end of the body feed conveyor.

DAY PULVERIZER-CRUSHER



Shatters MAN-SIZE STONE IN Seconds!

This sectional view of the down-running DAY swing hammer Pulverizer-Crusher manufactured by Brooks shows how most of the reduction is done before the rock reaches the grate bars.

● Hundreds of users all over the world report that dollar for dollar their DAY Pulverizer-Crusher outlives and outproduces other machines of this type because — (1) it's faster — designed to completely shatter man size stone in a matter of seconds . . . up to 75 tons per hour capacity, — (2) it's heavier — extra sturdy, massive and compact, and yet — (3) it is more readily accessible because of its simple design. Other advantages include extra take-up holes, interchangeable manganese steel side liners, reversible swing hammers, reversible screen bars, reversible rotor and many other maintenance-saving features.

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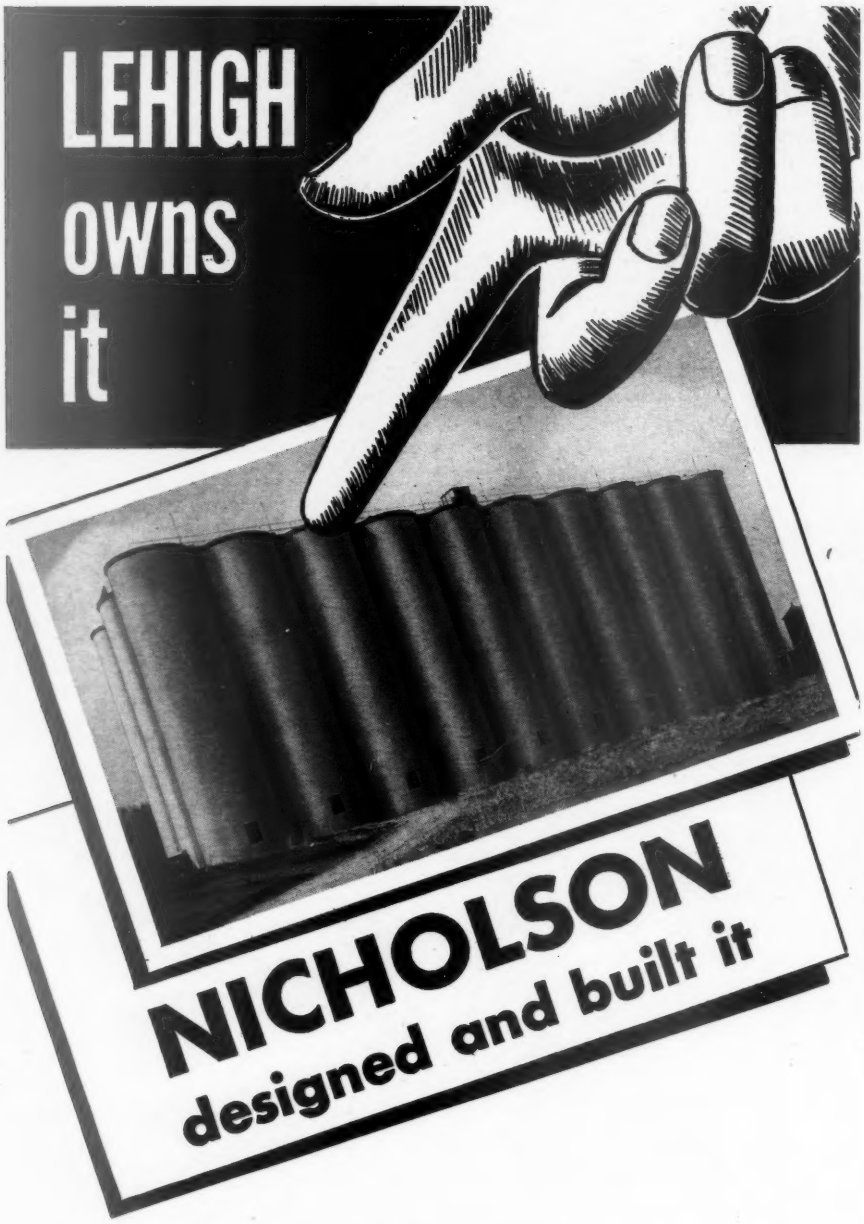

Nicholson has the experienced engineers, specializing in storage handling facilities, to design and construct storage bins of any type and any size. This 30 bin (plus) job for Lehigh Portland Cement Company at Alsen, New York is an example of a "big" project. We are just as able and willing to tackle a single bin, one thirtieth the size of this Lehigh job.

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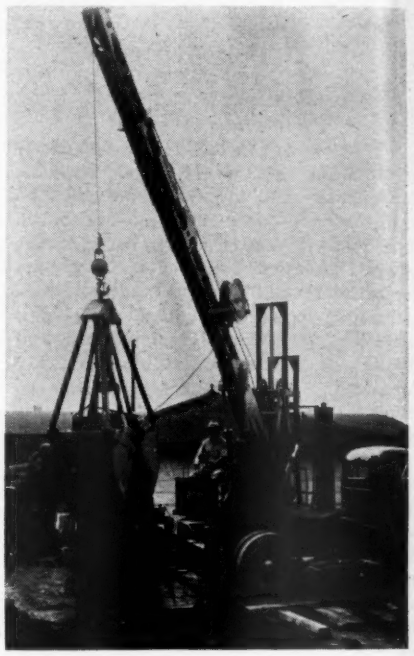
"Bin Building Since 1914"

● Hydraulic Crane

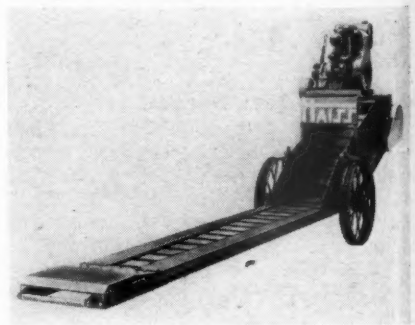
A versatile 3-ton truck crane which is completely hydraulic is the Bucyrus Erie "Hydrocrane". Mounted on a 2-ton truck chassis, the Hydrocrane travels from job to job at truck speeds and may be used as a crane, a clamshell or a magnet.

The boom telescopes and hoists hydraulically; the bucket digs hydraulically, and the load (whether lifted by crane, clamshell or magnet) is hoisted hydraulically. In addition, the upper deck revolves and the outriggers are set by the same means.



Accomplishment of unusual jobs is possible, according to the manufacturer, because of the telescopic boom, which can be extended 8 ft. Boom foot location—about 3½ ft. above the deck—is claimed to add to the effectiveness of the boom when used in a nearly horizontal position. A 12-ft. insert is available for jobs in which a longer overall reach is desired.

Increased capacity for the weight of the Hydrocrane is achieved because it is operated on outriggers which take the load, thus eliminating all dead weight, as well as the need for a heavy truck.

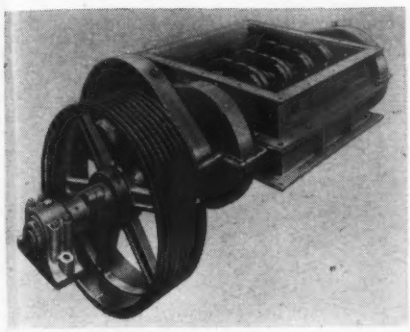


This belt type car unloader is designed for easy unloading of coal or aggregates from hopper-bottom cars. Manufactured by Haiss, a Division of Pettibone Mulliken Corp., N. Y.

● Double Roll Crusher

The latest design of the Eagle double roll crusher for clay or shale primary reduction, product of Eagle Iron Works, Des Moines, Ia., includes improvements and new features which provide longer service life, simplified maintenance and more efficient operation, according to the manufacturers.

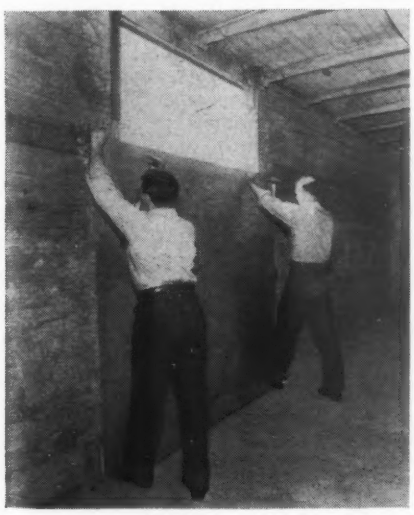
Shafts which are 50 percent stronger, and larger cutter bearing areas con-



tribute to longer life; and the simplified frame construction reduces cutter changing time. Self-aligning bearings reportedly withstand extreme abuse under heavy crushing or shaft deflection; they also have improved dust seals, supplying positive protection and reducing maintenance cost. A positive-acting shear pin clutch protects the entire unit against damage.

● One-Piece Retaining Door

A one-piece retaining door has been developed by the Signode Steel Strapping Co., 2600 N. Western Avenue, Chicago 47, which simplifies cooperating doorways of freight cars used in shipping bulk commodities such as cement, lime, sands, soda ash, and clays. The Signode retaining door is made of several thick-

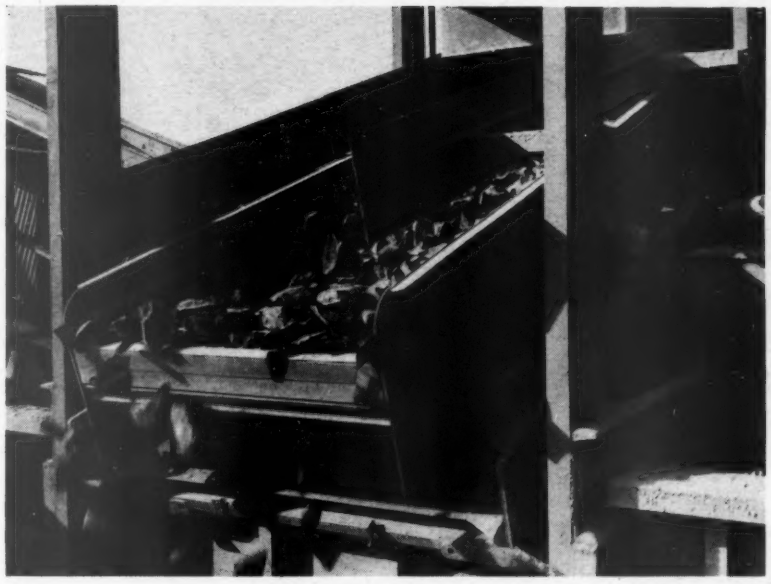


nesses of heavy-duty, water-repellent kraft liner board, laminated with non-hygroscopic asphaltum binder and reinforced with steel straps.

Doors may be installed by one or two men. In either case, the door is centered across the door opening and nailed in place from the top down. The last side nailed is tension-nailed.

"For best screening results and least maintenance you can't beat SECO"

HARVEY N. CLARK

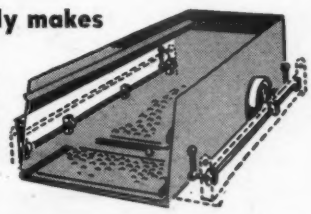


WE ARE SCREENING 3,000 TONS OF STONE PER DAY WITH SECO SCREENS

We set up our plant for volume production—we don't want to lose a day due to equipment breakdown. That's why through the years we've come to rely on Seco vibrating screens for every screening operation in our plant. We now have twelve Seco's screening everything in our plant from Ag-lime up. We have not touched one this year—not even for a minor adjustment. Signed, Harvey N. Clark, Dolomite Products Corp., Rochester N. Y.

SECO'S patented Equalizer Assembly makes big difference in performance

This exclusive Seco engineering feature controls the true circular motion of the screen to produce greater tonnages of *accurately* screened materials.



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In Canada: United Steel Corp., Ltd., Toronto

on the job for 16 years

● Here's a record that speaks for itself.

For more than 16 years, the same double-deck 4' x 8' Deister Vibrating Screen has been handling the scalping at the North Cincinnati Sand and Gravel Co. Cincinnati, Ohio.

This performance record thoroughly sold General Manager Charles K. Oberle on the reliability and durability of Deister Screens. As a result, a second Deister Screen was installed at North Cincinnati's modern concrete silo plant two years ago.

Such records of long service, high capacity and low maintenance costs are old stories to Deister Vibrating Screens. Their extensive use in screening and sizing sand, gravel, crushed stone, ore, coal and coke is the best evidence of outstanding performance. There's a Deister Screen built for the requirements of your plant . . . write for the recommendations of Deister Engineers or the name of your Deister dealer.

DEISTER SCREENS

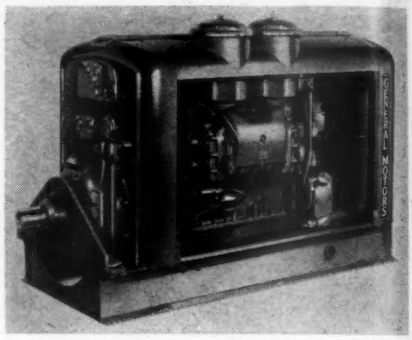
DEISTER MACHINE CO.

FORT WAYNE 4, INDIANA

● Combination Power Unit

A major advance in the development of industrial power plants has been unveiled by the Detroit Diesel Engine Division with the announcement of a torque converter and fluid coupling unit specifically engineered to the General Motors Series 71 2-cycle diesel engine. Consisting of four major elements—a pump, a turbine and two stators—the unit produces torque multiplication of up to 4 to one.

The complete integrated power plant actually occupies no more space than the same engine equipped with the conventional clutch and power takeoff. This accomplishment has been made possible



by employing the flywheel as a working component of the torque converter assembly.

The unit combines the features and advantages of both torque converters and fluid couplings. Outstanding characteristic is its ability to pick up load with maximum lifting power and shift automatically from the torque converter to the fluid coupling principle in the higher speed range. Because of this exclusive feature the high efficiency of the General Motors torque converter is maintained through an exceptionally wide speed range.

Besides being capable of building up the multiplied turning energy necessary for starting variable heavy loads of this type, the unit provides a highly efficient transmission of power during periods of light load conditions by automatically changing over to the fluid coupling. The fluid circuit prevents the engine from stalling under any load conditions and at the same time protects the driven machinery as well as the engine from sudden shock caused by heavy obstructions.

The new engine-torque converter combination is made available by Detroit Diesel in the Single 3, Single 4, Single 6, Twin 4 and Twin 6 Series 71 models having engine ratings ranging from 75 to 300 hp.

● Ice Remover

Research conducted by the Goodyear Rubber Company of Akron, O., resulted in the development of a salt-sodium dichromate solution for removing ice and snow on city streets. According to tests, the use of this mixture reportedly saved thousands of dollars in repair bills on automobile tires. Of the tires inspected, 68 percent had no corrosion such as that present when 100 percent salt is used on pavements.

Diesel Mine Locomotive

In "Davenport" mine locomotives, the drive consists of a diesel engine with a clutch built into the flywheel. The clutch shaft drives the upper shaft of the transmission through a double universal joint, in order to permit movement of the transmission, which is mounted on the main axle. The back of the transmission is supported with rubber suspension, and this is in turn connected to the main frame. Coupling between the main axles

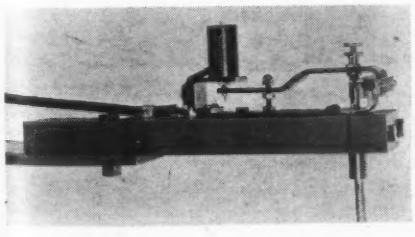
and other axles is by chain and sprockets. Ball and roller bearings are used throughout in the clutch and transmission.

Rubber nose suspension of transmission absorbs the shocks due to starting, shifting gears, and shifting of cars hauled by the locomotive, thus prolonging the life of the transmission and clutch. The transmission is mounted directly on the main axle, thus eliminating the friction due to chains and sprockets or jackshaft drive and connecting rods.

The use of a double universal joint between the clutch and transmission simplifies repairs, as it is not necessary to keep the transmission bearings in alignment with clutch bearings. In case of replacement or adjustments, it is necessary only to remove the clutch housing, a matter of some 8 to 12 bolts.

The clutch supplied in Davenport locomotive is a double gunnite disk with four facings. These are 1½ in. thick for heat absorption. The facings are made by the Raybestos Company and are "Hyco Wholcloth", which along with the gunnite disk reportedly gives the smoothest engagement and longest life of any material used to date. The Davenport Besler Corporation, Davenport Locomotive Works, Davenport, Ia.

Shown below is an extensometer assembly for detecting thermal dimensional changes in mineral specimens, specially designed by the Baldwin Locomotive Works. The quartz rod at upper right activates Invar lever through adjusting screw and in turn the Microformer extensometer (left center). An extension cable transmits the signal to the servo-motor activating the Microformer recorder and chart.



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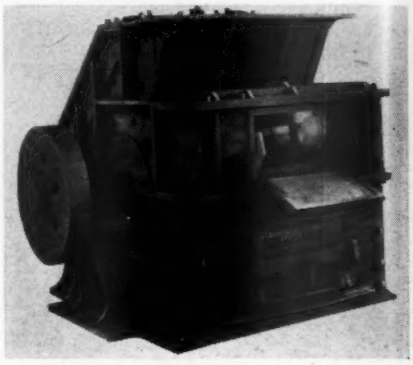
INDUSTRIAL FRICTION MATERIALS

No. 1 With Leading Manufacturers

● New Hammermill Series

American ACS Series 30 and Series 24 hammermills feature extra-heavy construction for severe service, according to the announcement by the American Pulverizer Co., 1249 Macklind Ave., St. Louis 10, Mo. Joints are machined for dust-tightness. Conventional front-feed produces a coarser finished product with reduced fines, while the center-feed hopper feeds stone to utilize the upper crushing chamber to gain rapidity of impact and a finer crushed product.

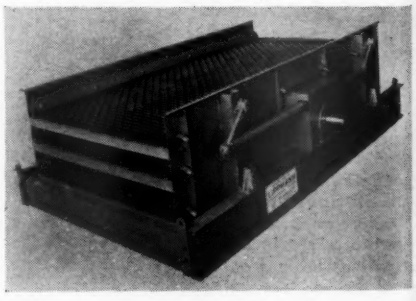


An external lockbolt adjustment of the grinding plate provides for change of product and compensates for wear. Right- or left-hand drive is optional, and a built-in metal trap can be furnished. Constructed for compactness and flexibility of operation, the American ACS, according to the manufacturer, uniformly crushes any hardness of stone and other types of friable or fibrous materials.

● Vibration Screen

The new Lippmann positive eccentric vibrating screen, known as the "Screen-All," contains a number of new features, such as a straight shaft with eccentric hubs mounted on bearings on the outside of the screen body where they do not interfere with production.

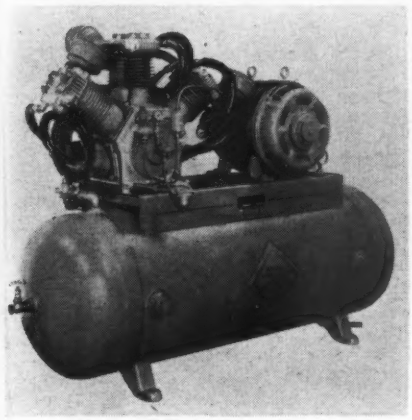
These bearings are self-aligning spherical roller bearings mounted 7/8-in. apart, which reduces the bending moment of the shaft to almost nothing. Mounting the bearings on the outside of the screen body reduces the overall height of the screen, resulting in more head room in cramped quarters. In addition to this the screen is mounted with three-point support on the sub-structure to keep it from racking or twisting. The Screen-All is made in a variety of sizes in both single- and multiple-screen decks. Lippmann Engineering Works, 4603 Mitchell Street, Milwaukee, Wis.



• Versatile Compressor

An air compressor that can "grow" to meet expanding requirements for air has just been announced by Air-Flo Compressor Co., Akron, O. The new basic compressor, on which patent applications are pending, uses 18 principal parts to construct a line of 48 different models of 1-, 2-, 3-, 4- or 6-cylinder pumps in single or two-stage types.

The manufacturer asserts that this rep-



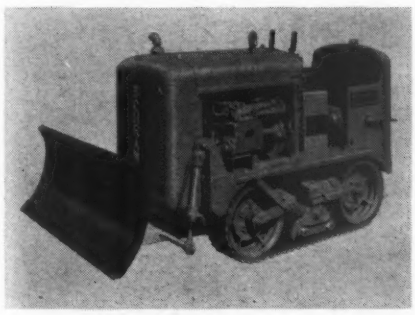
resents the largest number of models ever made from one standardized set of parts. All parts are interchangeable.

It is quite practical, for example, to purchase the size pump suitable for immediate needs and as requirements for air expand to buy additional parts to increase the compressor's capacity (or pressure). Complete interchangeability permits carrying a small basic inventory of replacement parts.

Air-Flo compressors are available for prompt shipment in sizes from ½ to 40 hp. with 2.5 to 275 c.f.m. capacity at 30 to 300 lbs. pressure in vertical V-type or side angle construction, with single, twin, or radial staggered cylinder arrangements.

• Self-Propelled Compressor

Schramm, Inc., West Chester, Pa., has developed a new self-propelled compressor which not only furnishes air for pneumatic tools but also offers the



possibility of operating many other power attachments.

This unit consists of a standard Schramm Model 60 compressor in which four cylinders of a V-8 block are used for the engine and four for the compressor. Power is transmitted from the compressor engine to a standard Ford truck transmission with four speeds forward and one speed reverse.

Newest

LOWER-COST ROLLER BEARING... ROLLS TRUER! LASTS LONGER!

ROLLWAY

Tru-Rol

Guide Lips give True Rolling

Here's a new low-cost bearing that's an efficient running mate for Rollway's famous bronze retainer bearings. It's been thoroughly tested and proved . . . gives remarkable performance in those uses where there has to be just the right balance between the economy and precision factors of bearing selection.

Maintained Alignment

The "Guide-Lips" on Rollway's TRU-ROL roller bearings are curved flanges, deep and broad in the retainer pockets.

They guide each roller in truer alignment. They convey a thin film of lubricant to each roller . . . and keep it there. They maintain correct roller alignment, reduce wear and maintenance costs.

Tru-Rol
The new lower-priced bearing with top performance!

ROLLWAY
BEARING COMPANY, INC.
SYRACUSE, N. Y.

Sales Offices: Philadelphia • Boston • Pittsburgh • Cleveland • Detroit • Chicago
Minneapolis • Birmingham • Houston • Los Angeles

You Can Depend on NAYLOR Pipe For Fresh Air Underground

For underground ventilating service, Naylor offers advantages found in no other light-weight pipe.

It is strong, tight, leakfree. The reinforcing truss created by the Lockseam Spiralweld assures additional collapse strength and holds accurate diameter and true cylindrical form so that ends always match correctly. Its light-weight makes it easy to handle and install. Also, the Naylor Wedge-Lock Coupling speeds installation. Joints can be made up with only one side of the pipe in the open, thus permitting the line to hug the wall wherever space is limited. From every standpoint, no other light-weight pipe can match Naylor in push-pull ventilating service. Sizes from 4″ to 30″ in diameter with all types of fabrication.

Naylor Pipe

NAYLOR PIPE COMPANY

1257 East 92nd Street, Chicago 19, Illinois

New York Office: 350 Madison Avenue, New York 17, N. Y.

● Track Roller Grease

Immediate availability of a new special lubricating grease for truck wheels, track idlers and support rollers of Allis-Chalmers "H-D Series" track type tractors has been announced by Pennsylvania Refining Company, Cleveland 4, Ohio. Marketed under the trade name of "Penn Drake A. C. Track Roller Grease," the product has been approved, according to the Cleveland company, by

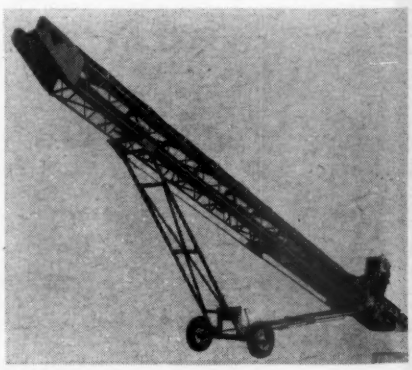
Tractor Division of Allis-Chalmers Mfg. Co. and appears on the list of approved lubricants for use in their equipment.

In meeting approval, the grease reportedly passed all performance tests, as well as physical and chemical tests. It is also said to be extremely stable grease and will not deteriorate with long use.

The manufacturers claim that it clings tenaciously and lubricates constantly without separation, despite exposure to weather, moisture and other extreme service conditions.

● Conveyor with Hydraulic Hoist

The Universal Engineering Corp., Cedar Rapids, Ia., has developed a new portable conveyor with a hydraulic hoist which will lift the conveyor as high as 21 deg. in approximately ten minutes and relower it to traveling position in



about 1 minute. This conveyor is available in lengths of any multiple of 4 ft., with a minimum of 32 ft. and a maximum of 52 ft. in the channel frame or 60 ft. in the lattice frame.

Gas, diesel or electric power may be used to run the unit. Balanced mounting makes it possible for one man to lift the conveyor to the truck hitch.

● Plastic Eye Protector

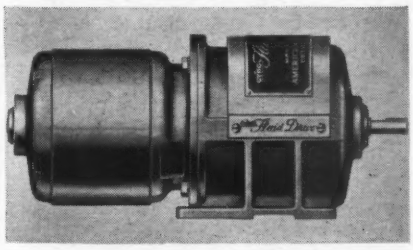
For eye protection in grinding, spot welding, and similar light-duty operations, Willson Products, Inc., Reading, Pa., have added two newly-styled "Mono Goggles" to their line of personal protective equipment for industrial use. Made of a one-piece plastic lens, it offers

wide, clear vision and ample eye protection.

Features which contribue to comfort when worn on all-day jobs are its light weight, impact, resistance, and low heat transmission of the lens, which greatly retards fogging. Both flat and curved lenses are available, so that those who wear prescription glasses may select the most comfortable style.

● Hydraulic-Electric Power

American Blower Corporation of Detroit, Mich., has announced a new line of hydraulic-electric power units with built-in Gyrol fluid drive which it will put on the market March 1, 1949. These new units will be manufactured in sizes ranging from 1 through 20 hp. Each

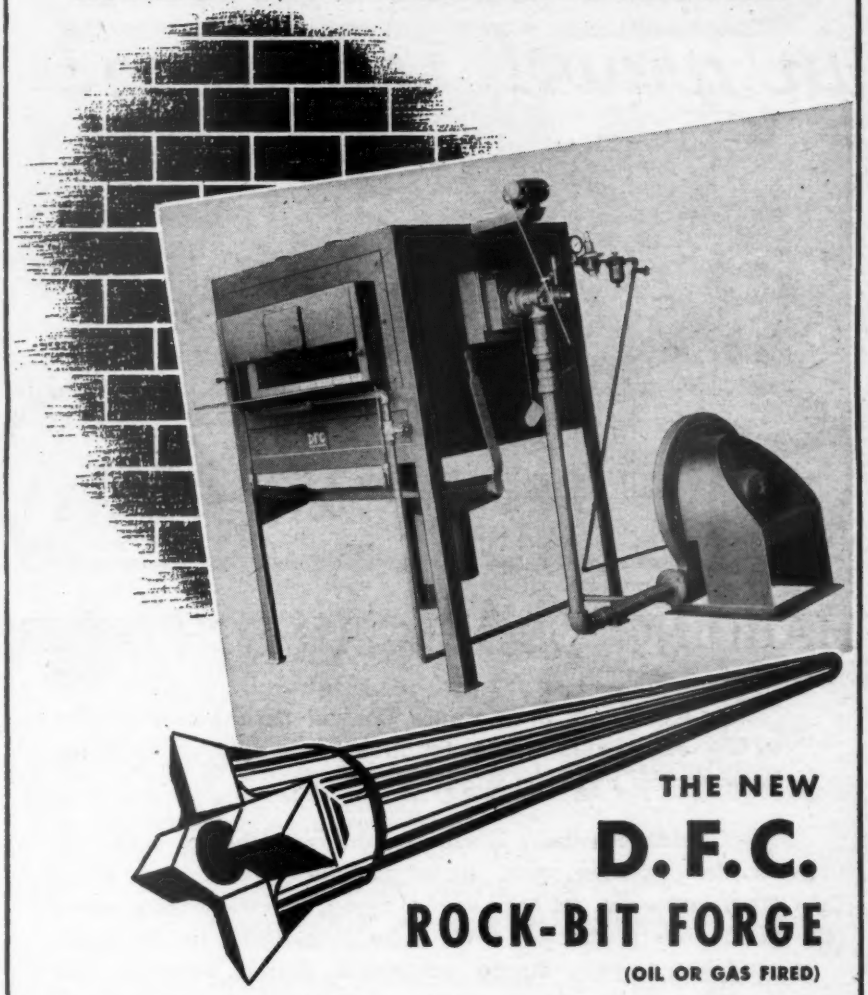


unit will have standard N. E. M. A. mounting bolt hole dimensions, and will be delivered complete with electric motor. First sizes produced will be powered with 5- and 7½-hp. motors.

According to the manufacturer, the motor starts unloaded at the snap of the switch and attains up to 85 percent of full speed before starting the load, thus saving more than 50 percent in current which is usually expended in starting. Other desirable points cited are as follows: positive, gradual accelerations' no metal-to-metal contact; and over-load protection.

ROCK-BIT

LIFESPAN LENGTHENED



THE NEW

D.F.C.

ROCK-BIT FORGE

(OIL OR GAS FIRED)

Ideal for any heating operation involving detachable rock bits.

- THREAD FORMING
- HOT MILLING
- HEAT TREATING

- Excellent performance at any temperature to 1900° F.
- Uniform temperatures throughout roomy 27 in. by 24 in. hearth.
- Installation space only 92 cu. feet. (floor space—16 sq. ft.)

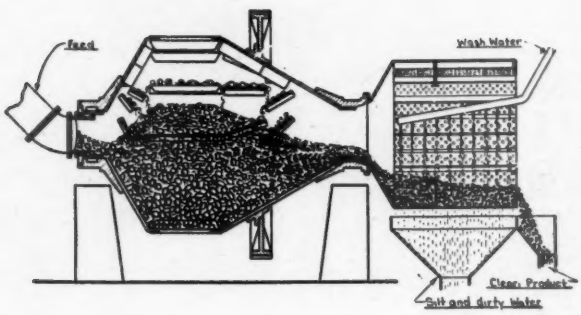
WRITE FOR BULLETIN DB-1

The DENVER FIRE CLAY Company

EL PASO, TEXAS · NEW YORK, N. Y. · DFC · SALT LAKE CITY, UTAH

DENVER, COLO., U. S. A.

What is MASS ACTION in gravel scrubbing?



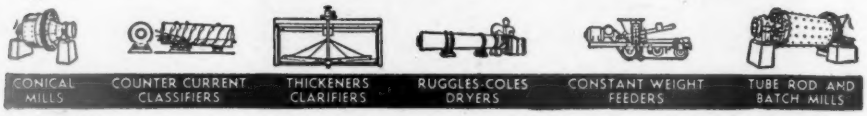
HARDINGE CONICAL SCRUBBERS

"Mass Action" in a Hardinge Conical Scrubber is similar to the effect obtained by rubbing a handful of pebbles between the palms in a bucket of water.

The Conical Scrubber is used to remove adhering clay, silt, etc. from gravel, ores, stone phosphate rock, and many other materials. Its high speed, along with the mixing effect of the lifters and the deep mass of material in the shell, produce a very strong scrubbing action between the heavily-weighted bottom layers of material. The classifying action of the cones holds back the larger lumps of clay or dirt until disintegrated. Final separation takes place in a rotating washing screen at the discharge end.

This scrubber is capable of removing very hard clay in a very short time without excessive wear in the scrubber itself. Write for Bulletin 37-A-8.

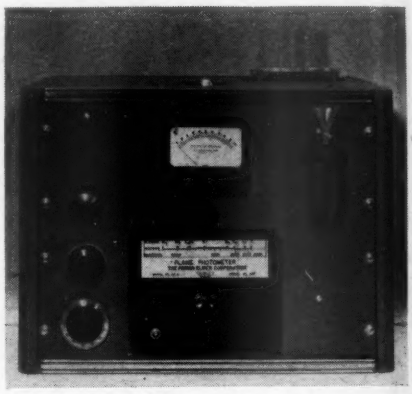
HARDINGE
COMPANY INCORPORATED
YORK, PENNSYLVANIA — 240 Arch St. • Main Office and Works
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 11—24 California St. • 200 Bay St.—TORONTO 1


CONICAL MILLS | COUNTER CURRENT CLASSIFIERS | THICKENERS CLARIFIERS | RUGGLES-COLES DRYERS | CONSTANT WEIGHT FEEDERS | TUBE ROD AND BATCH MILLS

● Flame Photometer

The Perkin-Elmer Model 52-A flame photometer is used for rapid, accurate analysis of the following ions with limiting sensitivities as shown: Na, 0.03; Li, 0-1; K, 0-1; Mg, 20; Ca, 2; Sr, 2; Ba, 20; Cr, 10; and Mn, 5.

Advantages claimed over chemical procedures are speed, accuracy and direct use of the complete sample without the necessity of element separation. Sample preparation consists of placing a known weight of the material in solution. This solution is atomized as a fog into a special burner, which utilizes propane or acetylene, and the elements present are excited to characteristic light emission. A monochromator disperses the light into a spectrum and the element radiation desired is selected by the exit slit mounted on a movable element selector arm. The light falls on a photocell; the resultant current is amplified



and read on the meter as the amount of element present in the sample.

Instrument calibration is obtained from standard solutions. Analyses with the Perkin-Elmer instrument can be made by the "absolute" method, i. e., determination of the unknown by direct measurement of its light emission, or by the "internal standard" method, i. e., introduction of a known amount of Li in the sample and measurement of ratio of unknown light emission to known Li emission. Accuracy by the first method is 1 to 3 percent of the amount present, and that of the second method is higher. Services required for operation are 110 volt a.c.; compressed air, 30 to 50 lb. pressure; tank propane or acetylene. According to the manufacturer, this instrument has proven successful in soda and potash determinations in portland cement. The Perkin-Elmer Corp., Glenbrook, Conn.

● Wire Rope Lubricant

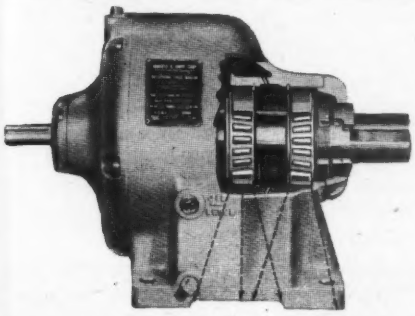
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y., are the makers of a new wire rope lubricant—"LSS" compound—for protecting wire and cable against deterioration caused by weathering, exposure to salt spray, corrosive fumes and vapors, and mechanical strains and tensions.

LSS is compounded of high-melting petroleum lubricants, anti-corrosion agents and pigments of high tinctorial strength. The manufacturers state that it has durability, elasticity and position adhesion. It dries tack-free in 24 hours.

● Speed Reducer

The new "Winsmith" patented helical gear differential speed reducer is now in production by the Winfield H. Smith Corporation, Springville, Erie County, N. Y.

The new model retains all the advantages of previous models—compactness, more teeth in action, larger reductions in



a given space, high efficiency and economy—with the adidtional important advantages of direct-centered load distribution, more rigid and vibrationless mounting, larger area for heat radiation, and increased quietness of operation.

The gears of the Winsmith differential helical gear reducer are made integrally and are combined in a planetary frame to form a complete unified planetary element. Constantly maintained smoothness of operation and equalized load distribution through all three sets of planetary gears are the results.

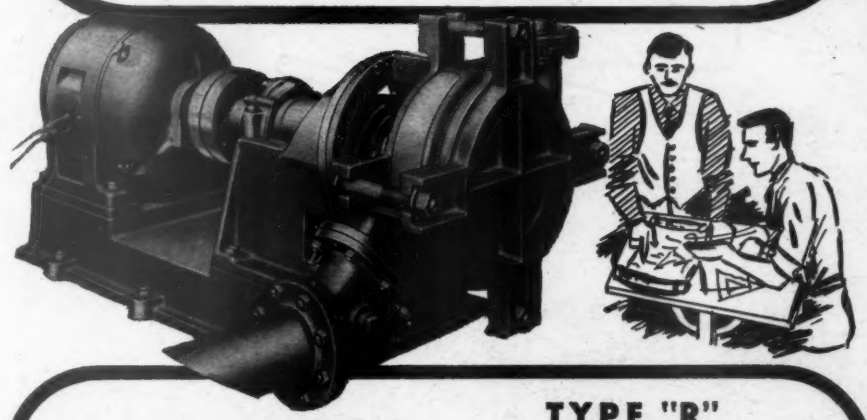
Ratios from 5 to 1 to as much as 50,000 to 1 can be provided with no increase in number of parts. Horsepower ranges from .62 to 81.5. Six sizes are available for every phase of industrial service. The Winsmith is made in horizontal, vertical and flange-mounted styles.

● New Respirator

A new, inexpensive respirator for protection against nuisance dusts is announced by American Optical Company, Southbridge, Mass. This respirator, the R-2900, designed to protect against light concentrations of nuisance dusts, is recommended for workers in cement mills and some grinding operations.

The streamlined design, similar to AO's R-2000 respirator, allows unobstructed front and side vision. The filter is lightweight, inexpensive and easily replaced. The retainer cup is light and durable.

Men in YOUR field helped us build it



TYPE "R"

MORRIS SLURRY PUMPS

● Handles heavy cement slurry for longer continuous service with less maintenance and fewer replacements

A few years ago we combined our experience of 80 years with yours gained mainly in the field. We solicited your suggestions and recommendations . . . made extensive practical tests . . . and then designed the Type R Slurry Pump to meet your specific slurry-handling needs.

Now ONLY the Morris Type R has these FOUR outstanding features

1. Impeller and renewable shaft sleeve are removable *without disturbing the piping*. You simply loosen four *outside* clamping bolts and take off the end cover. This feature alone saves considerable time and labor.

2. Since the gland is under suction pressure only, the packing is subject only to suction or positive head pressures. This reduces leakage and dilution . . . keeps harsh abrasives out of the stuffing box . . . practically eliminates packing troubles.

3. The simple design of the Type R does not use internal studs or bolts. The suction disc liner is clamped into place between the disc and the shell. Shoulder fit to the suction disc insures perfect alignment.

4. Shell is interchangeable for right or left hand rotation. The suction and discharge nozzles can be rotated around the axis of pump to a total of 72 different locations.

Free Service — *Morris Engineers will be glad to recommend the pump best suited to your needs for size, capacity, etc. Send us necessary data today.*

MORRIS MACHINE WORKS, Baldwinsville, N.Y.
Sales Offices in Principal Cities

MORRIS Centrifugal Pumps

with an EAGLE

at Wapak's new Sand and Gravel Plant

A new Ohio plant . . . a new Eagle Long Weir Screw Washer - Classifier - Dehydrator. The Wapak Sand and Gravel Plant selected an Eagle for thorough cleaning, exact classification, and maximum dewatering of sand.

Material excavated by Boom Dragline is conveyed to a scalping screen which shunts oversize to a crusher for reduction for re-entering system. All material is then conveyed to a barrel type scrubber, shown at start of flow chart. It then goes to a 3-deck vibrating screen which produces three sizes of gravel.

All fines (minus ¼") passing lower deck are flumed to the Eagle. Here the tumbling action of the Eagle screw loosens and scrubs the material while the constant rising current of water floats out all trash. The final dewatering stage is so effective that this plant uses a 19° pitch conveyor to stack. Fines can be rejected to any desired classification by altering volume of water and by controlling head and velocity of overflow with adjustable Weir lips. Send for Catalog 47.

SINCE 1872 Progress...Service

Sand and Gravel Equipment

"SWINTEK" DREDGE LADDERS — SCREW WASHERS
LOG WASHERS — DEHYDRATORS — SAND TANKS
CLASSIFIERS — REVOLVING SCREENS

EAGLE IRON WORKS

133 Holcomb Ave. • Des Moines, Iowa

● Power Transmission Unit

The Twin Disc Clutch Co., Racine, Wis., manufacturers of industrial clutches and hydraulic drives, announces a new hydraulic power transmission unit, the "Hydro-Sheave" drive, a hydraulic-conversion device for small electric motors and internal combustion engines. The basis of the new unit is a Twin Disc small hydraulic coupling, designed for smothering shocks and smoothing the flow of power from motors or engines in the ¾- to 25-hp. range.

Designed especially for use with Worthington QD (quick detachable) V-belt sheaves, the new Hydro-Sheave drive package consists of a small Twin Disc hydraulic coupling with a sleeved shaft which slides directly over the output shaft of any small electric motor or engine.

In the Twin Disc Hydro-Sheave drive, oil is the only medium of power transmission. Incoming power from the electric motor or internal combustion engine rotates the hydraulic coupling inner member, the blades of which throw a continuous stream of oil against the vanes of the coupling outer member, or housing. The rotation of the housing with its attached sheave or sprocket provides a steady, uninterrupted flow of power to the driven equipment. A sudden shock or overload from the driven equipment is absorbed by the fluid in the hydraulic coupling and never reaches the motor or engine. Conversely, torsional vibrations from the engine or motor are effectively dampened out by the fluid and never reach the driven equipment.

Among the many industrial applications to which the Twin Disc Hydro-Sheave drive may be applied are cranes, hoists, conveyors, elevators, winches, fans, blowers, compressors, machine tools, and test stands.

● Heavy-Duty Air Hose

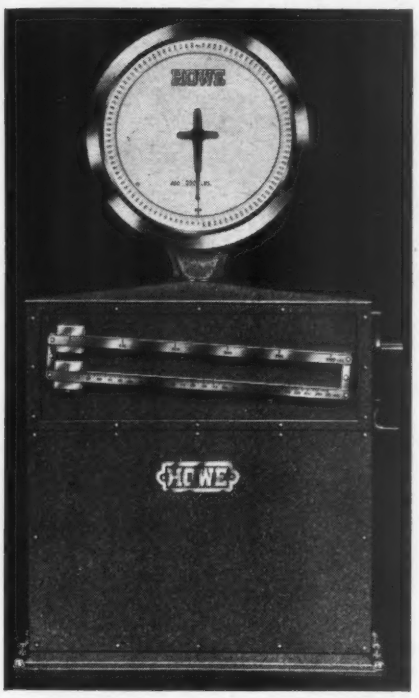
The development of Condor "Homo-Flex" heavy-duty air hose for rugged service encountered in mining and quarry operations has been announced by Manhattan Rubber Division, Raybestos-Manhattan, Inc., Passaic, N. J. This addition to Manhattan's Condor Homo-Flex Hose line can also be used to advantage in other air service requiring a super-tough type of hose.

According to the manufacturer, it has an extra strong tube compounded of Manhattan oil-proof Flexlastics, two braids of heavy-strength member, and a thick abrasive-resistant oil-proof Flexlastics cover, yet retains the feature of flexibility for which the Condor Homo-Flex design is noted. Two sizes, ¾-in. and 1-in. inside diameters, are being made with working pressures of 350 and 300 lbs.

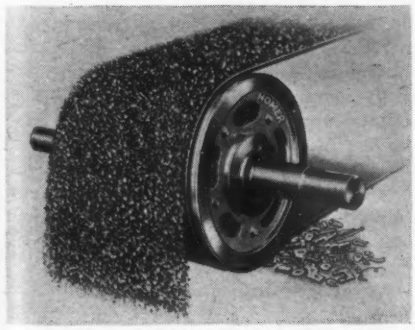
Cabinet Dial Unit

The Howe Scale Company of Rutland, Vermont, has announced production of its new tape-drive cabinet dial. This dial attachment has been especially developed for use with floor scales, industrial built-in scales, motor truck scales, tank scales and all types of overhead track and suspension scales. It is a flexible and wide-range weighing instrument, meeting the requirements of heavy, medium and light-duty industrial weighing with equal efficiency. Several basic technical advancements and extensive exterior modernizations are reported.

The outstanding improvement is the incorporation of the new Howe tape-drive principle. This is a positive-drive mechanism, using high-strength, non-



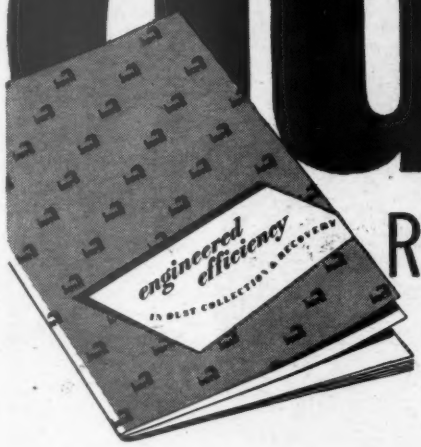
corrosive special alloy tapes to replace the old style rack and pinion. In addition, an adjustable, self-compensating hydraulic dash-pot using a new valve-type plunger working in "Zero-Flow" oil controls the pointer action and prevents shocks from reaching the mechanism.



A permanent magnetic pulley for separating tramp metals from belt conveyed materials. The pulley comes in standard diameters of 12, 15, 18, 20 and 30 inches. Belt widths range from 4-in. to 60-in. Maximum burden depths (depending on the material carried) are from 2½ in. to 6 in. Manufactured by the Homer Manufacturing Co., Inc., Lima, Ohio.

Read the latest on

dust RECOVERY



fly-away dollars

and how to trap them is the subject of Buell's 32-page catalog on dust recovery. It tells you why only Buell offers you a *fractional* efficiency guarantee. It's the only kind of guarantee that *accurately* and *reliably* predicts dust collector performance. The performance figures are often surprisingly high, for the Buell system has the patented van Tongeren 'shave-off'. It's an efficiency 'plus' found only in Buell's large diameter, non-clogging cyclones. Don't miss this factual booklet on planning dust recovery installations. Write today to the Buell Engineering Company, 12 Cedar Street, Suite 5000, New York 5, N. Y.

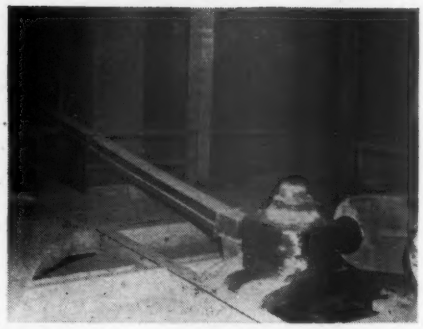
buell

Engineered Efficiency in
DUST RECOVERY

● Airslide and Airlift

The Fuller-Huron "Airslide" is a revolutionary type of conveyor for transporting fine, dry mateials without the use of moving pats. It comprises a slightly inclined porous medium which supports a stream of material sufficiently fluidized by air passing through the medium that gravitational force causes the material to flow.

The Airslide may be of either open or enclosed type construction. Both types feature a porous medium of low-air permeability, assuring uniform distribution of low-pressure air (e.g. 6-in. W.G.) in an air chamber below the porous medium.

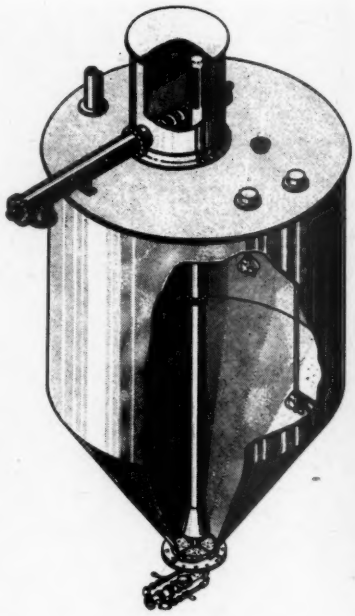


The Airslide has been used to convey a great variety of fine materials such as gypsum, soda ash, barite, lime, fly-ash, and cement. In the cement industry, this device has handled raw materials in the mill stream, air-seperator tailings, and kiln feed. At one cement mill a single airslide unit handled up to 225 tons of material an hour. Where there are a number of slides in one area, a single blower serves as the aerator.

Airslides are manufactured by the Fuller Co., Catasauqua, Pa., under exclusive license from the Huron Portland Cement Co.

The Fuller "Airlift" and constant-head feeder, which can be used in conjunction with the Airslide, is a device for elevating dry pulverized materials which have been placed in a semi-fluid state by means of aeration.

When it is used to deliver material at a constant rate, by weight, employing



a volumetric feeder, such as a rotary feeder or packing machine in such a manner that a constant head of material is maintained above such equipment, it is designated as a constant head feeder. When the device is used only for elevating materials, it is called an Airlift.

● Diesel Engine

A new Cummins diesel engine, based on the "Model H", yet developing 10 percent more horsepower, has been placed in production by Cummins Engine Company, Inc., Columbus, Ind. The HR-600 engine develops 165 hp. (maximum) at 1800 r. p. m., with 5⅛-in. bore and 6-in. stroke. Piston displacement is 743 cu. in. It is available in an automotive model, three industrial models, and a marine model. Model HRBI-600 basic industrial model; Model HRI-600 is equipped with instrument panel and trunnion support base; and Model HRP-600 is an enclosed power unit with structural steel base, clutch power take-off, radiator, fan, engine hood and fuel tank.

Field conversion to HR-600 from H-600 can be made by Cummins dealers. Steps involved include boring the present block and installing HR-600 pistons and liners.

CINCINNATI BELT CONVEYS QUARRY ACROSS RIVER

For years this Virginia plant quarried stone from their "own backyard" while a rich strata of rock was held in reserve on the opposite shore of the Shenandoah river. In 1947 plans were laid to work this quarry.

To get the rock across the river posed a serious problem involving handling costs, and production efficiency.

After thorough study it was decided to bridge the gap . . . new quarry to plant with a 1422 foot Cincinnati Conveyor Belt. Today crushed rock is streaming across the river at a low conveying cost per ton.

Cincinnati has a reputation for handling the tough jobs. Investigate "Cincinnati" today for your requirements tomorrow.

THE CINCINNATI RUBBER MFG. CO. Cincinnati 12, O.

CINCINNATI CONVEYOR BELTS

● Crushers, Kilns, Transformers

Significant developments in Allis-Chalmers varied equipment for the expanding and modernizing stone products and mining industries are revealed for the first time in the company's latest annual engineering review released early in 1949.

It reports, for example, completion of design work on a new line of primary and secondary crushers, new Type "R" crusher sizes, and redesigned A-1 jaw crusher features which make for greater ease in replacing worn parts.

Simplified wear adjustment, reduced weight, and increased capacity characterize the new line of primary and secondary crushers, which feature a special hydraulic head support to solve the problem of wear adjustment.

A new standard size (84-in.) in the Type "R" line will soon be available.

The 84-in. unit has a materially decreased overall length, incorporating reduced weight without sacrifice of strength or capacity.

In an unusual application of Utah electromagnetic vibrating screens being used to handle milk of lime, the screens have been divided and modified to permit removal of sand as well as pieces of coke. Special openings for cleaning screen surfaces and hoppers have been provided, and all screen parts coming in contact with the milk of lime have been constructed of stainless steel.

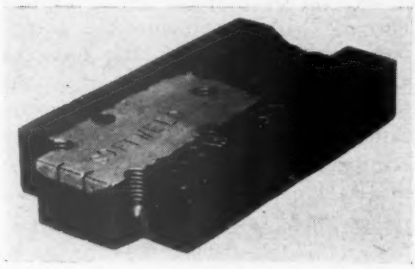
An 11- by 121- ft. Lepol process portland cement kiln with related nodulizer and Lepol grates, first unit of its kind manufactured by Allis-Chalmers, was suppled to a West Coast dry process cement plant. Adaptable only to the processing of some types of raw materials, the new equipment affords greater heat economies than are generally possible with ordinary dry process units.

Developments in Allis-Chalmers power distribution equipment applicable to the stone products and mining fields include a reduction up to 15 percent in dimensions and weights of some power transformers in the 750-10,000 kv.-a. range, 66-kv. and below.

The illustration above shows a huge boring tool for removing rings which impede operation of rotary kilns.

● Electrode for Cast Iron

The Lincoln Electric Co. of Cleveland, O., announces a new electrode for



welding cast iron, "Softweld," for depositing dense, soft machinable welds in gray iron castings. Softweld is a nonferrous electrode and operates with a soft, steady arc, either a.c. or d.c.

The operating characteristics of the new Softweld reportedly cause the weld to flow over and bond to the cast iron with the minimum of penetration and heating of the base metal. The deposit is smooth, dense and well feathered into the base metal. The entire weld area may later be drilled, machined, sawed or tapped with ease. The electrode may be used either to build up an edge, in making such repairs as restoring broken gear teeth, or it may be used to fill in holes in defective castings.

LOW IN COST...
HIGH IN PERFORMANCE

THE OSGOOD MODEL 50 3/8 YARD SHOVEL

A rugged, versatile, and dependable performer at low cost—that's the OSGOOD Model 50. Its simplicity of operation, easy maneuverability, and full convertibility to all attachments provide outstanding performance in the construction, road building, pit and quarry and industrial fields.

Available as shovel, crane, hoe, dragline, and clamshell. Equipped with OSGOOD patented wire rope crowd and automatic retract.

Write for complete details.

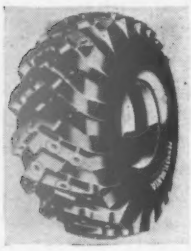
POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO. O-G THE GENERAL CO. EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

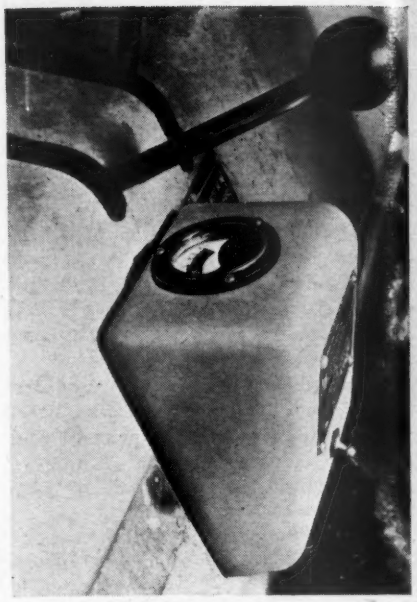
● Heavy-Duty Tire



A new line of road grader tires with an extra heavy cord body and especially compounded tread and shoulder rubber has been announced by the Pennsylvania Rubber Company, Jeannette, Pa. According to officials of the firm, the heavy cord body will stand the hard usage given this type tire by contractors and road builders. The new tread and shoulder rubber reportedly gives increased resistance to cuts and snags.

● Battery Charge Indicator

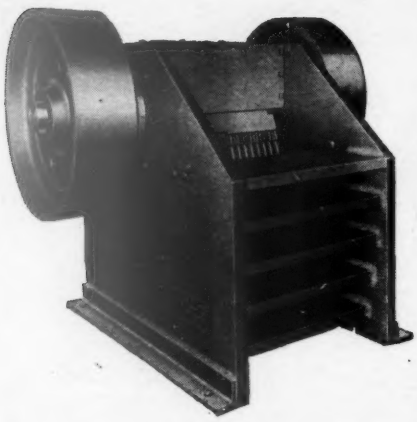
The Gould Storage Battery Corporation, Trenton, N. J., announces a new charge indicator which gives the momentary charge condition of the battery, and thus keeps the operator informed as to its state-of-charge throughout the shift. Three major advantages are claimed for the dash-board mounted instrument: lower cost; ability to report the state of discharge at any instant, rather than concealing vital information until the danger zone (overdischarge) is reached; tamperproofness against piece-work operators looking for the last half-hour pay at the expense of the battery.



The indicator is marked off into four sections, each of a different color. Green indicates a one-half to full charge, yellow a one-quarter to one-half charge, and red a zero to one-quarter charge. Pink indicates the battery is being used in an overdischarged condition. A rugged all-aluminum case, designed specially for vertical mounting, houses the instrument. The gauge is read while the truck is actually in operation.

The Wheatstone Bridge type instrument can be used with 3-, 6-, 12-, 15-, 16-, 18-, and 24-cell batteries, a series of resistors and taps being arranged to permit the desired adjustment. A toggle switch disconnects the instrument from the battery during charge.

JAW CRUSHERS



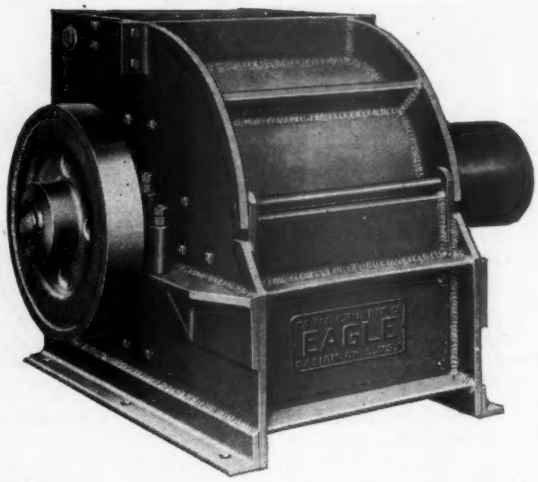
For many years Eagle jaw crushers have been performing faithfully through the nation and around the world. This modern design, large capacity primary crusher, by the originators of one-piece, electric welded crusher frames, is noted for its greater strength per pound crusher weight.

It comes equipped with plain self-oiling of SKF bearings. Reversible crusher jaws and cheek plates. Sizes range from 10" x 16" to 20" x 36" with capacities from 20 to 1,800 tons per day.

PULVERIZERS

This advanced type pulverizer does outstanding work in the field of reducing limestone for agricultural purposes. Very efficient in other types of stone reduction, too.

The one-piece welded steel frame is ¾" plate. Alloy steel shaft revolves on SKF self-aligning bearings in dust-proof housings. Sizes: 12" x 16", 12" x 24" and 36" x 42". Screen spacers from 1/16" to 2".



EAGLE

JAW CRUSHERS • IMPACT BREAKERS
PULVERIZERS • CONVEYORS • LOADERS

CRUSHER CO., Inc. GALION OHIO·U·S·A

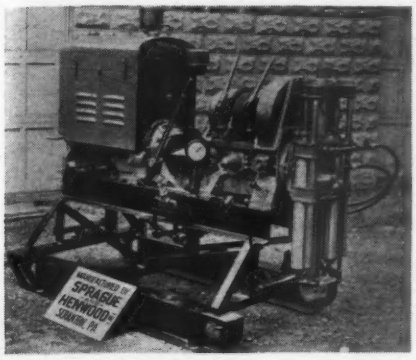
● New Grease Application Method

A new heavy lubricant for open gears under extreme service conditions and a new method of application have been developed in the laboratories of Keystone Lubricating Company, 3124 N. 21st Street, Philadelphia 52, Pa.

Known as Keystone Grease No. 32, the new lubricant is said to be equally effective through a wide range of temperatures, retaining its plasticity, tenacity and density from sub-freezing cold to its melting point, which exceeds 400 deg. F. It repels water, even at boiling temperature.

● Drilling Machine

A gasoline-driven diamond core drilling machine has been developed by Sprague & Henwood, Inc., Scranton, Pa.



This machine is powered with an 18-hp. Waukesha engine and has a capacity for drilling "EX" holes to a depth of 1,000 ft. and "NX" holes to a depth of 500 it.

The unit has a built-in, four-speed transmission and can be equipped with an auxiliary cathead when desired. It weighs approximately 2,000 lbs.

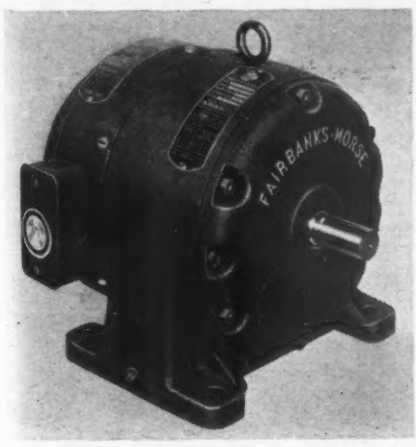
● New Line of Motorgears

Fairbanks, Morse & Co. of Chicago announces that its axial air gap motor, nicknamed the "pancake" motor, is now available as a motor reducer.

The outstanding features of the axial air gap motor are space and weight reduction, the motor being less than half the size of the conventional type of motor and weighing less by approximately one-third, yet reportedly retaining all the necessary characteristicis of sturdiness and power requirements. As a consequence of its inherent design, the new Fairibanks-Morse motorgear with axial air gap motor, says the company, is extremely compact.

Available in ratings from ¾ to 10 hp., these units are symmetrical in design with no separate right-hand or left-hand assemblies. The motor may also be removed from the gear housing and run separately.

The new motorgear employs two ratios of single helical gears with hardened



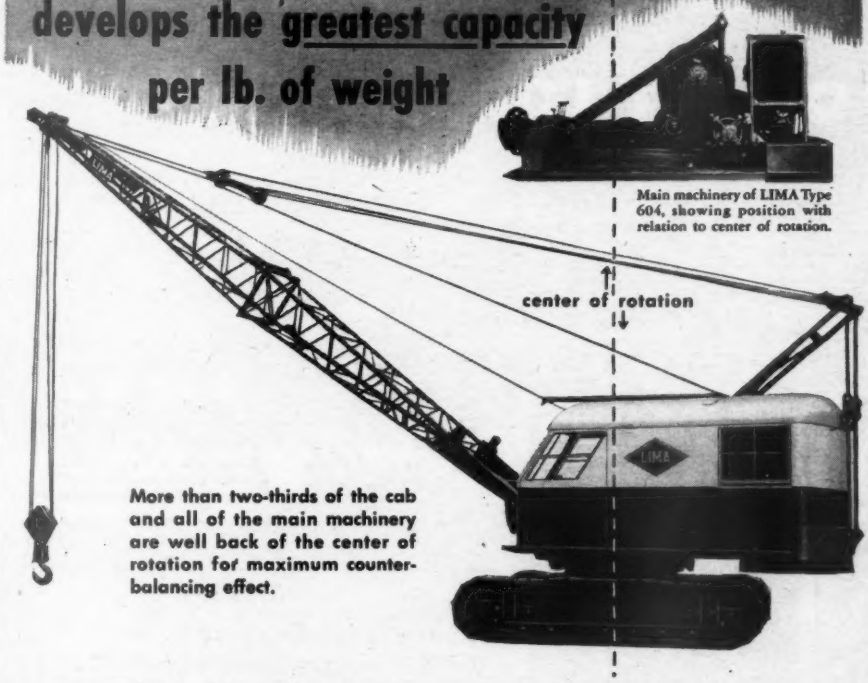
and accurately shaved teeth arranged in simple gear trains, resulting in the highest efficiency available in the mechanical transmission of power. It does not employ planetary gearing of any kind.

Another feature of this new motorgear is that the motor and gear shafts are parallel, with the centerline of the motor coinciding with the centerline of the low speed shaft. The motor shaft rotates on ball bearings, while the gear shafts are mounted on tapered roller bearings.

The gear housing is a sturdy one-piece casting with all four feet included in the same casting. It is suitable for horizontal mounting, preferably on a level floor, but provision can be made for wall, ceiling or angle mounting, provided the shafts remain horizontal.

The Hercules Motors Corp., Canton, O., have developed three models of flat "pancake" type diesel engines. One of the three models, illustrated here, is designated as the model DWXLDF horizontal engine.

Why the LIMA Type 604 develops the greatest capacity per lb. of weight



Main machinery of LIMA Type 604, showing position with relation to center of rotation.

More than two-thirds of the cab and all of the main machinery are well back of the center of rotation for maximum counterbalancing effect.

● The LIMA type 604 shovel, crane and dragline is engineered to produce greatest capacity with minimum weight. This is achieved by placing as much weight as possible *behind* the center of rotation—eliminating the need for excessive counterweight. Hook rollers on which the machinery base revolves eliminate strain from the center pintle—permitting continuous, safe operation at full capacity.

The simple, compact design of the main machinery, using the fewest number of shafts to accomplish the various operations, further contributes to efficient, trouble-free service.

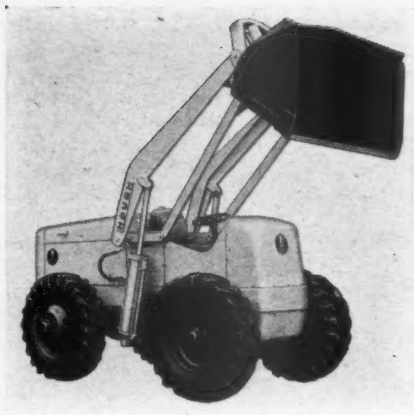
These are only a few of the features which makes the LIMA 604 a favorite with owners and operators. The Lime Line includes shovels ¾ to 6 yards, Cranes 13 to 110 tons and Draglines variable.

It will pay you to consult your nearest Lima Sales Office or representative before you buy your next shovel, crane or dragline. Offices in principal U.S. cities.

Lima Shovel and Crane Division
LIMA, OHIO
OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.
LIMA HAMILTON CORPORATION

● Tractor-Shovel Unit

The Frank G. Hough Co., 8012 Sunnyside Avenue, Libertyville, Ill., announces the addition of a new "Payloader" to its line of complete tractor-shovel units. This unit is known as the Model HM and features a revolutionary four-wheel drive and a power-boosted steering mechanism. This is reportedly the first time that the four-wheel drive principle has been applied to this type of equipment. The Model HM, which was first displayed at the 1948 Road Show, is the biggest of the Payloader line, having a bucket capacity of 1½ cu. yds. and a static loading capacity of 6,000 lbs. Its



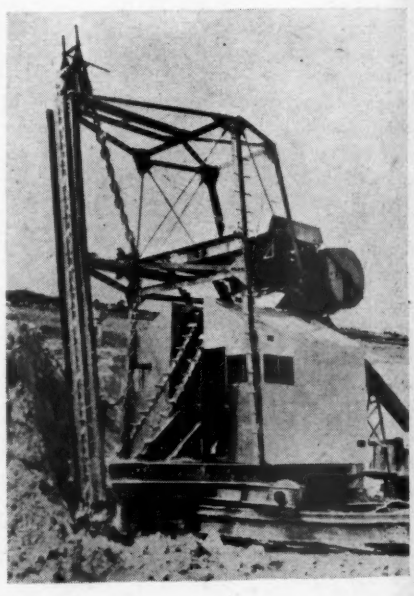
76hp. engine, four-wheeled drive and large 14.00x24.00 road builder tires on all four wheels provide the power, traction and flotation necessary for off-the-road operation.

Power steering on the rear wheels was provided to make this machine easy to steer, and a short wheel base and fully-reversing transmission with four speeds in either direction give it unusual maneuverability. Both the bucket-raising-and-lowering and bucket-dumping-and-closing is accomplished by double-acting hydraulic rams, fingertip controlled. The bucket booms are so designed that an automatic powerful digging action is given to the bucket independent of the forward motion of the tractor.

An automatic quick tip-back of the bucket is provided as it is raised so that heaped loads can be retained without spillage and can be carried low for good machine balance and full operator visibility. Because the operator's seat is located well forward and there are no super-structures, the operator has full visibility at all times, and the machine is low so that it can travel and work in low overhead locations.

● Shale Planer

The Eagle planer for material bank excavation of shale and other nonmetallic minerals is now available mounted on crawlers. The new unit advances, reverses and turns on its own crawlers, eliminating rail laying and other attendant delays inherent to the less mobile models.



The Eagle has a triple action. As it swings back and forth across the working face in an arc, the vertical cutter chain breaks small pieces from the bank from top to bottom. The material planed off is caught by a conveyor and carried to the rear for dumping into a hopper car, or onto a conveyor belt.

This planer is manufactured by the Eagle Iron Works, 129 Holcomb Ave., Des Moines, Ia.

CUT COSTS!

ON PIT LOADING...

with MM MINNEAPOLIS-MOLINE MODERN MACHINERY

6 Forward, 6 Reverse Speeds

Is this what you want in pit-loading equipment?... *in Maneuverability?... in Big Capacity?... in Easy Handling?* If the answer is "yes", see how you can cut costs with the MM "UTIL". It has 6 forward and 6 reverse speeds—18:00-26 rear tires for extra flotation—10,000 lb. front-end capacity—special heavy Ross steering gear. These and many other features equip MM industrial tractors for *fast, profitable, easy handling* on front end loader jobs.

MM Industrial Tractors are famous for the same *dependable, economical* performance that has made MM Power Units the choice for powering crushers, pumps, screens and conveyors. MM Power Units range in size from 25 to 230 HP.

See Your MM Dealer Distributor or Write

MINNEAPOLIS-MOLINE
POWER IMPLEMENT COMPANY
MINNEAPOLIS 1, MINNESOTA

● Power Shovel

The Michigan Power Shovel Co. of Benton Harbor, Mich., has introduced four new ½-cu. yd. pneumatic-tired power shovels. Designated as the Series 8, this shovel is available in either single-engine or twin-engine models with a choice on both models of either two-wheel or four-wheel drive.

Optional features available on the twin-engine models are remote control and worm-gear boom hoist. Remote control permits the operator to drive and steer from the turn table cab with the cab in any position. The worm-gear boom hoist feature permits raising and lowering of the boom while swinging, raising, or lowering the load under power.

● Spreader-Type Stoker

Complete, economical combustion of any grade of coal, even lignite, is possible with the Westinghouse "Centrafire" spreader-type industrial stoker, according to the manufacturer.

In the new stoker, coal is trajected by an air-cooled, hydraulic motor-driven rotor so that it falls evenly over the entire length of a Westinghouse Link-Grate. Undulation of the central grate keeps the fuel bed active and moving toward the ash discharge grates at the sides. Ashes are discharged from the furnace without interrupting the coal fed, reducing load or loss of steam pressure. A deficiency of primary air rising through the central Link-Grate is deliberately maintained. Resulting monoxides are burned in a turblent secondary air supply above the trajectory of incoming fuels. An increased supply of the metered primary air is admitted through the side areas of the grate and ash-discharge grates to provide complete combustion.

Coal is fed to the rotor by two long-stroke, slow-speed rams. A coal-feed equalizer plate driven from the rotor oscillates across the incoming fuel to assure a continuous feed whether the coal is wet or dry. One constant sped motor or turbine supplies oil pressure for all controls and drives. Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa.

● Vibration Meter

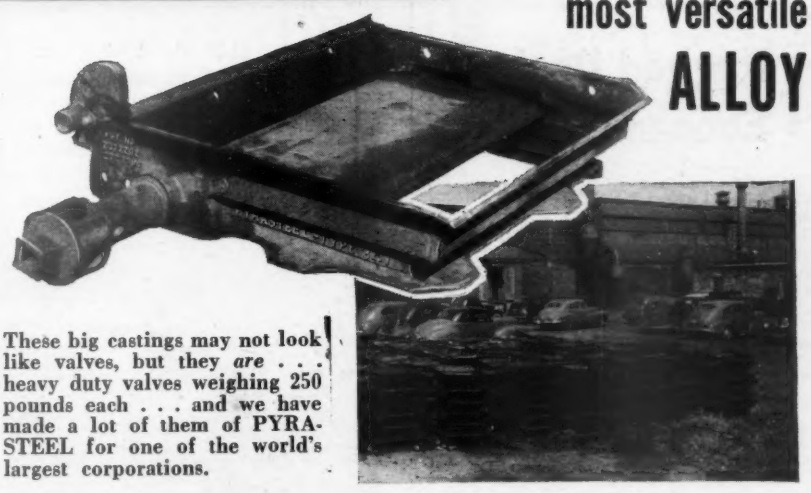
A new recording vibrometer which measures and records frequency, displacement, and wave shape of mechanical vibration, has been announced by General Electric's Special Products Division, Schenectady 5, N. Y.

Built to operate either when mounted on a fixed base or held in the hands, the vibrometer weighs only 7 lb. and is less than 8 in. in length. It was developed by G.E.'s general engineering and consulting laboratory for application in testing all types of reciprocating and rotating machinery within a vibration frequency range of 10 to 120 cycles per second.

A prod extending from one side of the vibrometer is set in motion when held against a vibrating body. This motion is amplified by a cross-spring arrangement and transmitted to a stylus which inklessly records the vibration on wax paper, thus making available a permanent record for vibration analysis of equipment. Another stylus produces a

timing mark near the edge of the wax paper every one-third of a second. Both the chart speed and the interval between timing marks are governed by a synchronous motor operated from a 115-volt, 60-cycle power supply. Two push buttons are provided to give chart speeds of 1 in. per second and 3 in. per second.

PYRASTEEL . . . Industry's most versatile ALLOY



These big castings may not look like valves, but they *are* . . . heavy duty valves weighing 250 pounds each . . . and we have made a lot of them of PYRASTEEL for one of the world's largest corporations.

This is typical of the great variety of uses of PYRASTEEL . . . in many different industries . . . for vital parts in processing equipment requiring resistance to corrosive acids and gases . . . for furnace parts, kiln ends, conveyor screws, drag chains, cement cooling equipment and other high temperature applications up to 2000° F.

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Makers of Alloy Steel for 35 Years
PYRASTEEL for high temperatures
EVANSTEEL for strength

"Cape Ann"
FORGED
Steel Drop Ball

- Rugged Design
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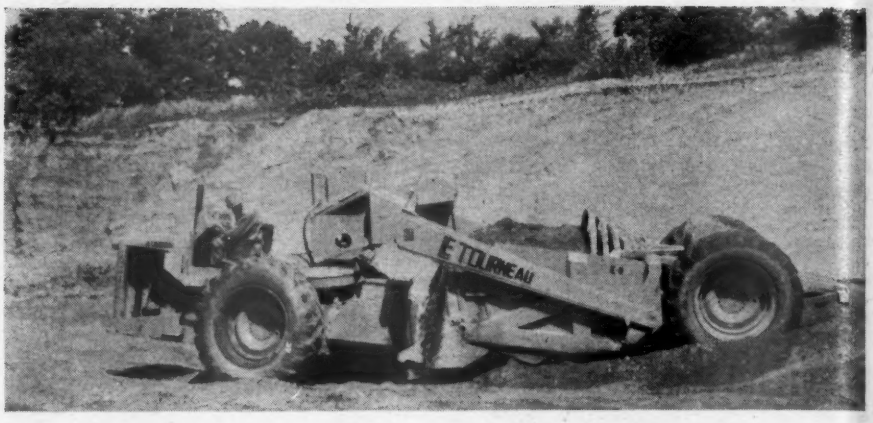
Cable replacements minimized. Forged connecting link, protected by deep recess, adaptable for swivel or shackle. Strong alloy steel pin. Furnished complete as shown.

2000 to 8000 lbs.

Deliveries prompt.

for further information write—

Cape Ann Anchor & Forge Co.
Gloucester - Massachusetts



● New Earthmover

The "Model D Roadster Tournapull", a new, small-sized unit for high-production earthmoving on small yardage projects has been added to the line of earthmoving equipment manufactured by R. G. LeTourneou, Inc., Peoria, Ill. Designed for self-loading, this one-man operated, high-speed Tournapull is especially suited for use in the pit and quarry field. Powered by a 100-hp. diesel or gas engine, this prime mover, which travels at speeds up to 25 m. p. h., is used with the E-9 Carryall scraper, a 9-ton or 7-cu. yd. heaped capacity unit.

A feature of this new Tournapull is the complete control of all steering and scraper operations by individual electric motors. The operator steers, and handles all scraper controls by means of toggle switches located on the control panel. Also incorporated in this machine is a torque-proportioning differential which automatically supplies power to the wheel on the firmest footing. Because of this both wheels are kept pulling at all times and neither wheel will spin independently of the other.

Multiple disc air brakes, on four wheels, provide 3132 sq. in. of braking surface, adding to safe operation. The D Roadster is mounted on 14 x 32 tapered bead tires, which provide flotation on soft material and enable this machine to travel on paved surfaces without damage.

● Small Tachometer

A new rugged, small-size, low-cost electric tachometer designed for continuous operation has been announced by The Electric Tachometer Corporation, 2218 Vine Street, Philadelphia 3, Pa. Measuring 2¾ by 5⅜ in., this small, sturdy unit broadens the field of applications for tachometers where instruments of this type are being used to provide

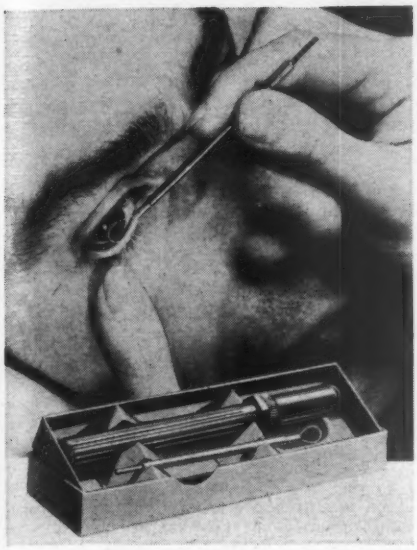
an indication of speed and production.

Housed in a cast bronze case, the tachometer will operate in any position through a wide range of temperatures. The unit is equipped with a large driving shaft. Various shaft arrangements are available to meet an unusually wide variety of operating conditions.

● Powered by a 275-horsepower diesel engine, Mack's Model LRSW six-wheeler carries a 30-ton payload with a dump body or pulls 55 tons as a tractor. Outstandingly maneuverable, the LRSW has a turning radius of 43 feet and is equipped with hydraulic power-steering system.

● Handy Tool for Eye Care

Designed for use in plants where workers are exposed to flying metallic fragments or other foreign substances subject to magnetic attraction, the General Scientific "Eye Sweep" is a convenient instrument for removing such substances from the eyes of plant personnel.



One end of the device is fitted with a magnet for removing steel particles; while the other is provided with a flexible loop for brushing off cinders, dust and other matter. The General Scientific Company, 2700 W. Huntingdon Street, Philadelphia 32, Pa.

● Three-Axle Crane Carriage

Six Wheels, Inc., 1550-84 E. 20th Street, Los Angeles 11, Calif., announces the "Maxi" three-axle close-coupled crane carriage, with a removable rear section of frame to provide for close-up digging operations.

Cited by the manufacturers are the following distinctive features: a rubber-tired rig ranging from 5 to 30 tons in lifting capacity or with ⅜- to 1½-cu. yd. capacity as a shovel; travel speeds up to 15 m.p.h.; high stability on a 360-deg. swing; short turning radius; one-man operation; controls operated from crane operator's position in the cab; special drawbar arrangement for towing crane with tractor truck.

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Registered Trade Mark

FOR
BURNING
LIMESTONE
MAGNESITE
DOLOMITE
etc.

THE ELLERNAN CALCINER

PREHEATS — CALCINES — COOLS

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203 CONTINENTAL BANK BUILDING — SALT LAKE CITY 1, UTAH

THE MODERN WAY
to fast accurate
WEIGHING

SCHAFFER
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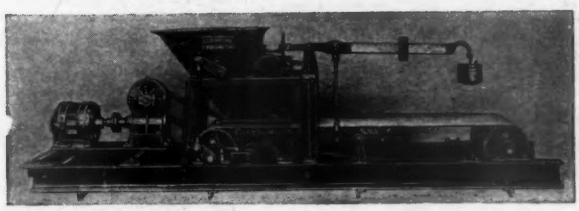


THERE'S A GOOD ROAD AHEAD to better profit-prospects—for producers who handle their material scaling jobs with SCHAFFER Poidometers.

Poidometers give dependable performance in every phase of bulk material handling, including weighing, blending, feeding, mixing, recording, and proportioning.

These automatic, durable, high-speed units operate with extreme precision and economy, and help maintain maximum output of your equipment.

Available with remote control weighing and recording devices, and total weight recorders.

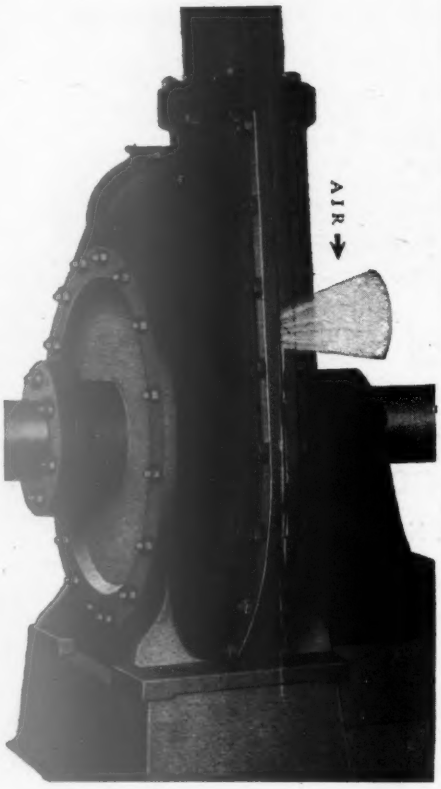
Write for Catalog No. 5

SCHAFFER POIDOMETER CO., 2828 Smallman Ave., Pittsburgh 22, Pa.

WE WILL LET YOU WRITE YOUR OWN GUARANTEE

THAT YOU'LL NEVER WEAR OUT a "Tell-Tale" Centrifugal Sand and Gravel Pump Shell!

(Patented)



HERE'S HOW AND WHY—

A length of flax packing is clamped between the halves of the split "Tell-Tale" Pump Shell to form an air-tight joint between the Shell and its Renewable Inner Lining.

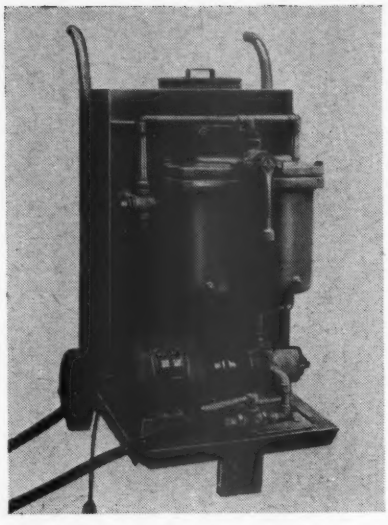
When the abrasive action of the sand and gravel, or other materials being pumped, finally cuts thru the tough Shell Liner, (and a few minutes later thru the flax packing) air will be sucked into the nearest port hole in the Shell. (What appears in the picture above to be a spray of water spurting out of the Shell is the artist's conception of air being sucked into it.) This causes the pump to lose its prime and immediately stop pumping materials. It also serves as a warning to the operator that the Shell Liner has worn out.

ASK FOR COMPLETE DETAILS; STATE SIZE PUMP INTERESTED IN AND REQUEST BULLETIN "P" ON AMERICA'S HIGHEST PRODUCTION PUMP.

PEKOR IRON WORKS

DRAWER 909

Columbus Georgia



● Portable Oil Flusher

The Lubey oil flusher for quick machinery cleaning is a product featured by the Fox River Tool Company of Menasha, Wis. The portable unit consists of the following: a 25-gal. tank and mountings for components, mounted on wheels for portability; a 3-g.p.m. positive displacement gear-type pump with safety pressure relief control and pump driver; cotton waste repacking-type duplex filters; two ½-in. hoses, each 6 in. long, made of oil-resistant synthetic rubber or plastic; nozzles with single orifice —sizes 3/32-in. to ¼-in.; switching valves and pressure gauges for controlling the flow path; heater or cooler (optional) for temperature control.

Either high-pressure nozzle or a gentle flushing stream of organic solvent, kerosene or lubricating oil may be used on the piece of equipment to be cleaned.

● Welding Rods

"Tube Tungsite" and "Tungrod," two new tungsten carbide welding rods for reclamation and hardfacing applications, have been announced by the American Managanese Steel Division of the American Brake Shoe Company, 230 Park Ave., New York 17, N. Y.

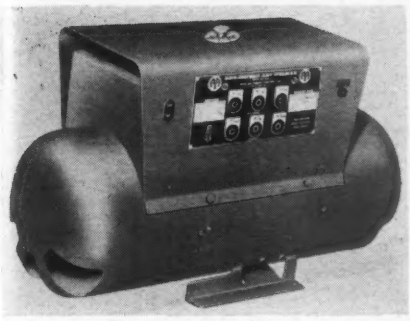
Tube Tungsite consists of Tungsten carbide particles of various screen sizes encased in a steel tube. When applied as a welding rod, the steel tube melts easily, forming a molten matrix, and since the particles of tungsten carbide have an extremely high melting point, the particles do not melt but remain in suspension. Since 50 to 60 percent of the deposit is of high-melting-point extremely hard tungsten carbide particles, rapid solidification occurs which evenly distributes the particles in the weld deposit, thus forming an extremely wear-resistant surface. Tube Tungsite is available in two types, bare for oxyacetylene application and coated for electric application.

Amsco Tube Tungsite is recommended for applications where severe abrasion occurs and where highly efficient cutting qualities are needed. It is an excellent hard-facing for rotary drill bits, power shovel teeth, ditcher teeth, dredge cutters, pug mill knives, scraper blades, scarifier teeth, and many other items.

Tungrod differs from Tube Tungsite in that Tungrod particles are from 40 screening down, while Tube Tungsite particles range from 5 to 40 screen size. Tungrod is applied in two types—bare for oxyacetylene application, and coated for electric applications. Tungrod may be applied more thinly and smoothly and to thinner base metals by the oxyacetylene process.

Bare Tungrod applied by the oxyacetylene process is recommended for hardfacing, pug mill knives, hand shovels, core cutters, etc. Coated Tungrod applied by the electric arc process is recommended for use on scarifier teeth, power shovel teeth, grader blades, screw conveyors, etc.

In order to meet the demand for a finely crushed product in portable plant operations, the Nordberg Manufacturing Co., Milwaukee, Wis. has mounted its Symons cone crusher on wheels. This picture, below, shows one of the new mobile units.



● Arc Welders

Metal & Thermit Corporation, New York, has announced a new group of a. c. and d. c. arc welding machines as a companion line to "Murex" electrodes and M & T welding accessories. The a.-c. unit features include built-in power-factor corrector; fingertip, stepless current control; fan-forced ventilation; wide current range; moderate open-circuit voltage operation.

Units are of the transformer type, available in 150, 200, 300, 400, 500 amp. capacities. These units also provide plug-in, plug-out of electrode leads by taper-type connector. Lead interchange is avoided by a permanent work lead connection. Running gear is available where portability is required.

A major design feature of all d.-c. models is a one-dial simplified control panel. Motor-driven d.-c. units are available in 150-, 200-, 300-, and 400-amp. capacities in the new compact 3600 r. p. m. model and in the conventional 1750 r. p. m. type.

● Industrial Riveter and Kit

Availability of the new Raybestos portable industrial riveter and kit has been announced by The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn. The riveter is suitable for relining shovel, crane, dragline and tractor bands up to 10 in. in width, either internal or external, which use 7, 8, or 10 series tubular rivets.

The riveter is of sturdy construction and can be disassembled to fit a small compact box.

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An attachment for handling 8 inch diameter standard testing sieves is available which provides uniform and exceptionally rapid results on sand samples.

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Knowing the facts about your products—the fluctuating changes in your operations and processes enables you to operate your plant more intelligently and keep operating costs down.

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2. **Your raw material**
3. **Semi-processed material at any desired stage**

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● Two New Tractors

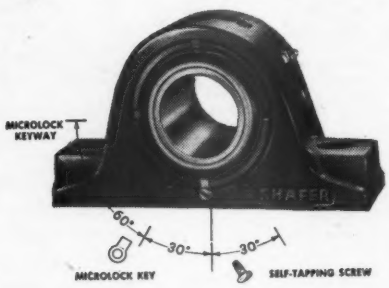
Two models of Hebard's "Shop Mule" —the J233PLD and the J233PLS—are tractors powered by International Harvester 6-cylinder, heavy-duty motor truck engines. These new additions to the Hebard line have a drawbar effort of 3000 lbs. and a towing capacity of 60 tons on dry level concrete.

The J233PLD (shown in the illustration) is a 1½-cu. yd. dump tractor for handling sand, gravel, and other bulky materials up to 4000-lb. capacity. Its companion model the J233PLS, was designed to carry up to the same load on a stake platform 64 in. wide and 51 in. long. W. F. Hebard & Company, 336 W. 37th Street, Chicago 9, Ill.

● Simple Bearing Adjustment

An exclusive feature of Shafer self-aligning roller bearing units is the "Microlock" adjustment, described by the manufacturer as "a simple, positive means of establishing and maintaining the required bearing adjustment."

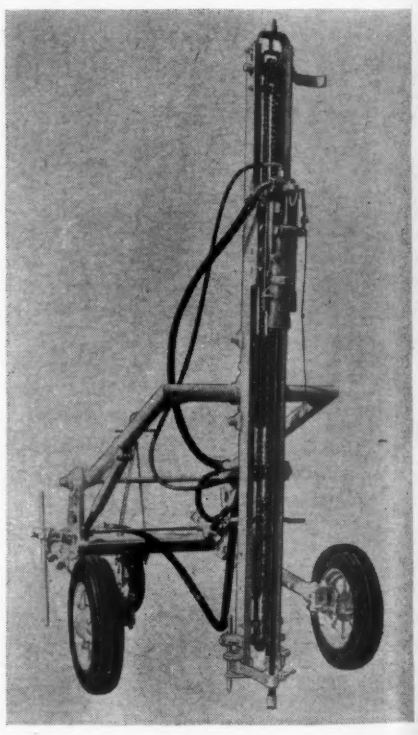
The device consists essentially of two simple parts—the Microlock key and a self-tapping screw. The housing is provided with drilled and counterbored holes spaced 30 deg. apart. The threaded bearing cover has four milled Microlock keyways spaced 90 deg. apart. The self-tapping screw and key are removed; the cover is rotated with a spanner wrench or screwdriver to bring the keyway to the desired counterbored hole; and the new adjustment is locked in with the key and self-tapping screw. No other tools are needed. Micrometer steps of bearing adjustment in increments of .005 in. on smaller units and of .007 in. on larger units are thus made possible with minimum effort.

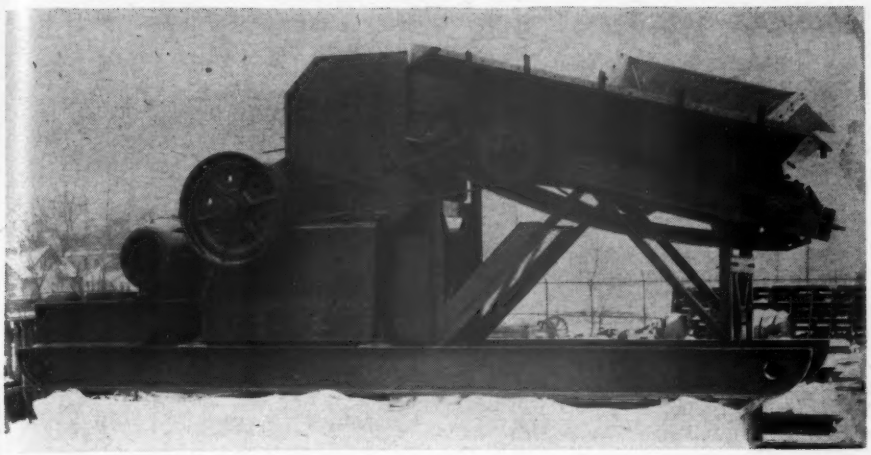


● Wagon Drill

Independent Pneumatic Tool Co., Aurora, Ill., manufacturers of Thor portable power tools, has announced a new wagon drill, model BW-1, equipped with the new Thor Model 105, 1¼-in. drifter rock drill. This new wagon drill features a single reversible pneumatic motor that feeds and raises the drill, eleminating the need of a hoist. The motor-driven feed also permits throttle control that allows the feeding speed of the drill to be reduced when necessary.

A 360-degree mast swing—vertically or horizontally—permits drilling of holes at any angle. The tublar frame of the rig serves as an air receiver, maintaining a continuous supply of air pressure which eliminates the usual pulsations of the hose line and insures a continuous pressure against the rock bit to prevent steel rebound between blows of the piston hammer. By means of the new Thor drill steel centralizer the drill steel is centered with the drifter drill chuck, eliminating difficulty in collaring holes.

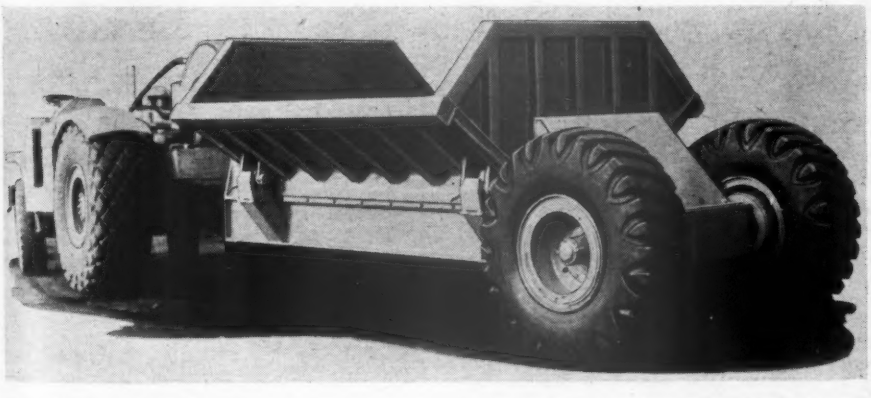




A Pioneer No. 171 primary crushing unit with 20- by 36-in. jaw crusher and 36 in. by 10 ft. apron feeder. Manufactured by the Pioneer Engineering Works Inc., Minneapolis, Minn.

Designed for use with the 358 is the Barber-Greene Model 363 portable conveyor for truck loading, stockpiling and general service. For bulk materials weighing 100 lbs. per cu. ft., capacities range up to 200 t.p.h. The 363 is available in lengths of 25, 30 and 35 ft., with plain or cleated belts (24 in. wide).

Power from the engine or the electric motor is transmitted by V-belt to the first gear reducer, then through a shaft to the head-end drive. Towing speeds up to 25 m.p.h. can be attained. Pneumatic tires are standard equipment.



● Quarry Trailer

Athey Products Corporation announces the new PD-10Q rubber-tired quarry trailer, designed for use with the "Caterpillar" DWIO tractor. This team is a fast-moving, high-production hauling unit for mine, quarry and related operations.

The body dumps to either side and is constructed of high-tensile strength steels to withstand rock loading impact and abrasion. The manufacturer calls attention to the wide all-welded frame, with its heavy hexagonal-shaped cross-members. Sturdy construction reportedly absorbs the torque or twist in the frame in dumping. The drawbar is welded to the frame for added strength. Struck capacity is 5½ cu. yds.; maximum payload, 15 tons. Large single low-pressure rock lug tires (18.00 by 25) are interchangeable with DW10 tractor driving tires. Athey Products Corp., 5631 W. 65th Street, Chicago 38, Ill.

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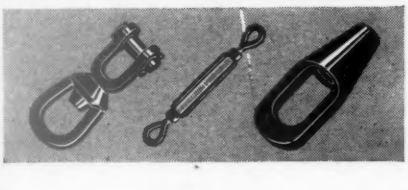


trade notes

The Straub Manufacturing Co. of Oakland, Calif., recently concluded arrangements with Tutt-Bryant Pty., Ltd., of Rydalmere, New South Wales, Australia, for the exclusive manufacture and sale of the Straub line of Kue-Ken and Simplex crushers in Australia and New Zealand.

Robert A. Olen, A. A. Washburn, and Samuel N. Pickard have been re-elected to the board of directors of The Four Wheel Drive Auto Company of Clintonville, Wis. The following officers were also re-elected: W. A. Olen, president; Joseph D. Cotton, vice-president; David J. Rohrer, vice-president; Donald S. DeWitt, vice-president; R. H. Schmidt, vice-president in charge of sales; R. A. Olen, general manager; S. H. Sanford, secretary; and James A. Driessen, treasurer.

The Hyster Company, manufacturer of industrial trucks and tractor equipment, has designated Shipping Utilities of St. Loius, Mo., as its new truck distributor to handle sales, parts and service in 36 counties of Missouri and 50 counties of Illinois.

In addition to shipping room supplies, Shipping Utilities will carry a complete line of Hyster's materials-handling trucks, including four lift-trucks ranging in capacity from 2,000 to 15,000 lbs.; two straddle truck models of 12,000- and 30,000-lb. capacity; and a 10,000-lb. mobile crane.

Harbison-Walker Refractories Company's new plant in Baltimore, Md., made its industrial debut in September. Almost completely mechanized equipment has made possible an output of 350 heat-resisting bricks per worker per day.

Construction work has started on a new $95,000 office building for the Bucyrus-Erie Company at 3210 Claremont Ave., Evansville, Ind. The two-story building will be 135 by 58 feet, and will be constructed of brick and steel.

A. J. Link has been named Chicago District sales manager for the Signode Steel Strapping Co. For the past seven years Mr. Link has held the post of sales representative, with headquarters in Indianapolis. He will direct company sales in Minnesota and Wisconsin, as well as the Chicago sales area.

R. K. Gottshall, formerly director of sales of the explosives department of Atlas Powder Company, has been appointed assistant general manager. W. E. Collins Jr., former manager of the Seattle, Wash., sales district, succeeded Mr. Gottshall as director of sales. Both will have headquarters at the general office in Wilmington, Del. George W. Thompson, special representative, New York sales district was transferred to Seattle as manager of that office.

W. E. Collins

R. K. Gottshall

G. W. Thompson

Mr. Gottshall began as chemist with Atlas in 1927; he has been director of sales since February, 1943.

Mr. Collins became associated with Atlas Powder Company as salesman in 1928, later becoming sales agent located at Allentown, Pa. Mr. Thompson is a graduate of the University of Delaware and came with Atlas in 1934.

William V. Pietsch, son of W. Vincent Pietsch, was married on October 23 in Dayton, O., to Miss Barbara Bains, daughter of Mr. and Mrs. B. B. Bains of Dayton. Mr. Pietsch and his bride plan to live in Hawthorne, N. J., and Mr. Pietsch will be associated with his father in the firm of Bacon-Pietsch Company of New York.

Jacob Barab, a consulting engineer in New York City and Lakeland, Fla., since 1945, died on October 9 at Atlantic City, N. J. In earlier years he had been associated with the Hercules Powder Company of Wilmington, Del., and in 1939 he organized the Kelbar Powder Company.

legal decisions

By LEO T. PARKER

Review of New Higher Court Law Suits Affecting the Non-Metallic Industry

Recently a reader wrote an interesting letter from which we quote in part, as follows: "Our company sells sand, gravel, stone and other materials for construction of buildings, etc. We have a suit on our hands because a bonding company refuses to pay us for material we sold to a principal materialman who sold directly to the general or principal contractor. What we want to know is: Is the bonding company liable for *all* materials used in construction of the building, or only such materials as were purchased by the contractor?"

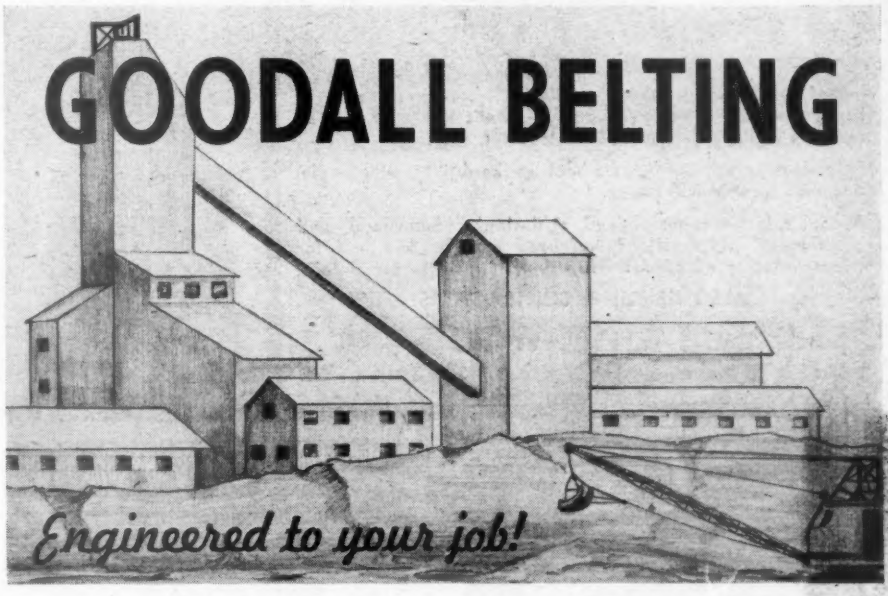
According to a recent higher court, a bonding company is not liable on an ordinary bond given a general contractor for payment of materials indirectly furnished the general contractor.

In many respects, subcontractors and principal materialmen have similar legal rights to mechanics' liens to secure payment for labor and material. However, a leading higher court established the law that sub-materialmen are *not* entitled to the same legal protection as afforded subcontractors and principal materialmen.

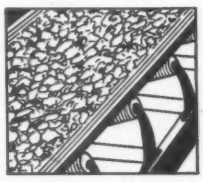
For illustration, in *Indiana Limestone Company v. Suthbert,* 267 Pac. 983, the testimony showed facts, as follows: A general contractor entered into a contract with a city for the erection of a public building. The contractor agreed to furnish the material and supply the labor necessary to construct the building in accordance with the plans and specifications. He furnished a bond which contained a usual clause that guaranteed payment for the work of all "laborers, subcontractors, teamsters, teams and wagons employed on said work and for *all material* used therein." The general contractor made a contract with the Wichita Cut Stone Company to supply the stone called for in the plans and specifications. This stone company purchased the stone from the Indiana Limestone Company, which prepared and shipped the stone ready to set in the building. When the building was completed the general contractor paid the principal materialman, the Wichita Stone Company which, however, failed to pay the Indiana Limestone Company, the sub-materialman, who filed suit against the bonding company to recover payment for the stone. This sub-materialman contended that it was legally a subcontractor entitled to a mechanic's lien on the building since the bond furnished by the general contractor covered *all material* used in construction of the building.

It is interesting to observe that the higher court held the Indiana Limestone Company, the sub-materialman, *not* entitled to payment under the bond furnished by the general contractor. This court made the important distinction between a subcontractor and a sub-materialman, as follows:

"A subcontractor in some sense represents the contractor, and he represents the owner of the building. He can be held to guarantee that he will pay for the materials and labor he used in constructing his part of the building. The cases . . . make a distinction between a subcontractor and a materialman, and hold the contractor and his sureties liable



Two factors insure long, low-cost belting service when you buy GOODALL brands . . . the traditional pride-in-product quality built into every length, and the selective specifications by which it is made to meet particular job requirements.



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"76" Brand—another leader in the Goodall line, for hard service on crushed stone, trap rock, etc. "La Crosse"—for general service on sand, gravel, finished cement.

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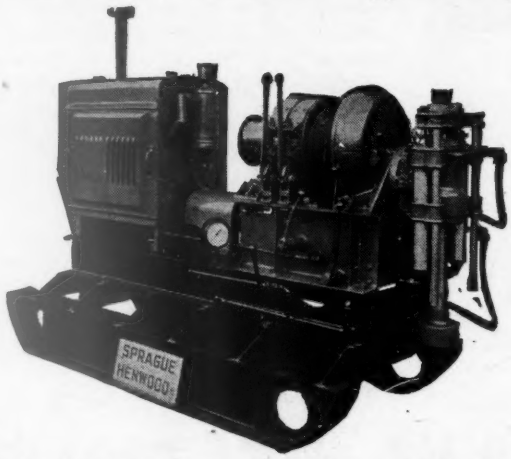
CORE DRILLING MACHINES
For EXTRA Efficiency



Used under the toughest conditions . . . always able to handle any core drilling job easily"—that's how operators all over the country describe S&H Machines.

These high-speed, sturdy units back up the drill bit with ample, sustained, economical power.

Available in two types of feed, as desired. "Screwfeed" and "Hydraulic." Hydraulic swivel head can be furnished for either water or oil operation. Write for Details.

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Drill Down Fast
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SAVE
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Increase Tractor Power
BULLDOG TRACTOR GRIP-LUGS are easily welded to any size or shape of grouser shoe. Special groove and bevel permit a sure grip weld—controls amount of welding rod used. Made of finest grade steel to withstand punishment from rocky-glacial soils. *BULLDOG TRACTOR GRIP-LUG SPEEDS UP THE JOB.*

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for materials and labor furnished to a subcontractor, and *not* liable to the manufacturer or dealer from whom a materialman may have purchased his stock."

Another important point of law is that a seller cannot recover payment from a general contractor's bonding company for materials sold the general contractor in violation to the bonding contract between the general contractor, the owner and the bonding company.

For example, in *Pell Const. Company v. Pennsylvania,* 35 F. (2d) 265, a general contractor entered into a contract with a state to build a concrete highway. He furnished a bond which guaranteed materialmen and subcontractors payment *in cash* for *all material and labor* furnished in completion of the highway.

A cement company which furnished the cement for construction of the highway accepted $30,000 in notes from the general contractor in payment for a portion of the material used. Later the general contractor went into bankruptcy and the seller of the cement sued the bonding company to recover payment. The higher court held the bonding company not liable for payment because the seller of the cement had violated the terms of the bonding contract which provided that the contractor should pay *cash* for all material. The court said:

"When Hendricks (seller) accepted notes in lieu of cash, he departed from the bonding contract. . . . Moreover, if Hendricks had stuck to the contract method of payment, these notes would not have been given and naturally the Construction Company (general contractor) would not have defaulted in their payment and no demand would have been made upon the bonding company for indemnity."

Fair Labor Standards Act

Considerable discussion has arisen from time to time over the legal question: If an employer is mainly engaged in a retail business must he comply with the Fair Labor Standards Act? The answer is yes if a substantial part of the employee's activities relate to goods whose movement is in the channels of interstate commerce.

For example, in *Wage and Hour Div. v. W. E. Wright Company,* 168 Fed. (2d) 40, the testimony showed facts, as follows: A corporation operates several yards and is engaged in the business of selling sand and gravel, ready-mixed concrete, etc. Its gross annual sales exceed $1,000,000. Approximately 15 per cent in dollar volume of the goods it sells are received from sources outside the state, and approximately 79 percent at retail. At the main warehouse certain employees spent 25 percent of their time in unloading and storing both interstate and intrastate shipments received at the warehouse or yard at which they were employed. However, the testimony showed that these employees spend only 3.57 percent of their time unloading and storing goods received in *interstate* commerce.

Nevertheless the higher court held that these employees must be paid wages and overtime specified by the Fair Labor Standards Act. This court said:

"We are not here concerned with a minimal amount of interstate activity on the part of the appellee (employer), for it received 15 percent of its supplies in interstate commerce. This, by any standard, is substantial."

Innocent Must Suffer

Circumstances very often arise when an *innocent* purchaser of nonmetallic equipment must suffer financial loss. Knowledge of the following new law suit will assist readers to avoid these losses.

In *Guerin v. Kirst,* 188 Pac. (2d) 509, a contractor engaged in a general grading business sold a man named Grove a used tractor. Grove made a small down payment, and the sale was evidenced by a conditional sale agreement signed by both parties. The contractor allowed Grove to take possession of and use the machine. Without permission or knowledge of the contractor Grove sold it to a contractor named Kirst. When the first contractor learned of this sale he sued Kirst to get possession of the machine.

Kirst contended that he should be allowed to keep the equipment because he was an innocent buyer, and did not know that Grove had failed to pay the first contractor. The higher court refused to agree with this argument and ordered Kirst to give up possession of the machine to the first contractor, saying:

"Under such circumstances the con-

ditional vendor is entitled to recover even though the subsequent purchaser had no knowledge of the reservation of title by the original vendor until payment in full."

For comparison, see *Martin v. Hollins,* 118 Cal. App. 561. In this case a dealer sold on time payment four generator sets to one Hollins. Thereafter the dealer *consented* to Hollins selling two of such sets. About six months later, without the knowledge of the dealer, Hollins sold to Waldorf Productions Company a third set for $7,000.

In subsequent litigation the higher court held that the dealer could *not* get possession of the set of generators sold to the Waldorf Company because the dealer had given Hollins permission to sell two of the sets whereby Waldorf Company had *good reason* to believe that Hollins owned *all* of the sets.

Hence this court held that if the seller of equipment does any act which leads an innocent purchaser to *believe* that the one in possession of the equipment is the real and legal owner, the innocent purchaser can keep the equipment.

Seller Is Relieved

According to a recent higher court if a written sale contract contained a typewritten clause that the contract is the *complete* agreement, the purchaser has no recourse against the seller.

For example, in *Rockford Company v. Laugh,* 227 N. W. 374, it was shown that a written contract contained a typewritten clause: "The contract covers all agreements between the purchaser and the Rockford Company, seller."

The purchaser refused to pay for the purchased machine and the seller filed suit. During the trial the purchaser proved that the seller's salesman had breached his agreement since he *verbally* promised and guaranteed that he would assist the purchaser to learn to operate the machine and he *did not do so.* Nevertheless the higher court held that the purchaser must pay the full contract price, saying that the above clause in the written contract clearly relieved the seller from any and all verbal agreements made by the salesman.

Notwithstanding this decision, it is well known that such a contract clause or notification will relieve neither the seller nor buyer of responsibility where the testimony shows that fraud or deceit was practiced to influence the other party to make the contract. This is so because all courts agree that *no* person, firm or corporation can contract against liability for fraud.

Sherman Anti-Trust Act

According to a recent higher court any attempt of sellers of materials to fix prices of products violates the Sherman Anti-Trust Act.

For illustration, in *United States v. United States Gypsum Company,* 68 S. Ct. 525, the testimony showed facts, as follows: Certain manufacturers undertook to control prices and distribution of gypsum board by means of patent license contracts. In these contracts the owner of the patents retained the right to fix the minimum resale prices for the product. Also, the owner of the patents retained the right to cancel the license if the licensee failed to live up to these price agreements. Bulletins were sent out which gave directions to the industry as to prices and methods of operation.

Although the lower court refused to hold that the manufacturers had violated the Sherman Anti-Trust Act, the higher court reversed the verdict, saying:

"The license agreements and the bulletins establish the conspiracy of the licensor and each licensee to violate the Sherman Act. . . . It is well settled that price fixing, without authorizing statutes is illegal. . . By the record now presented, violation of the Sherman Act is clear."

Contributory Negligence

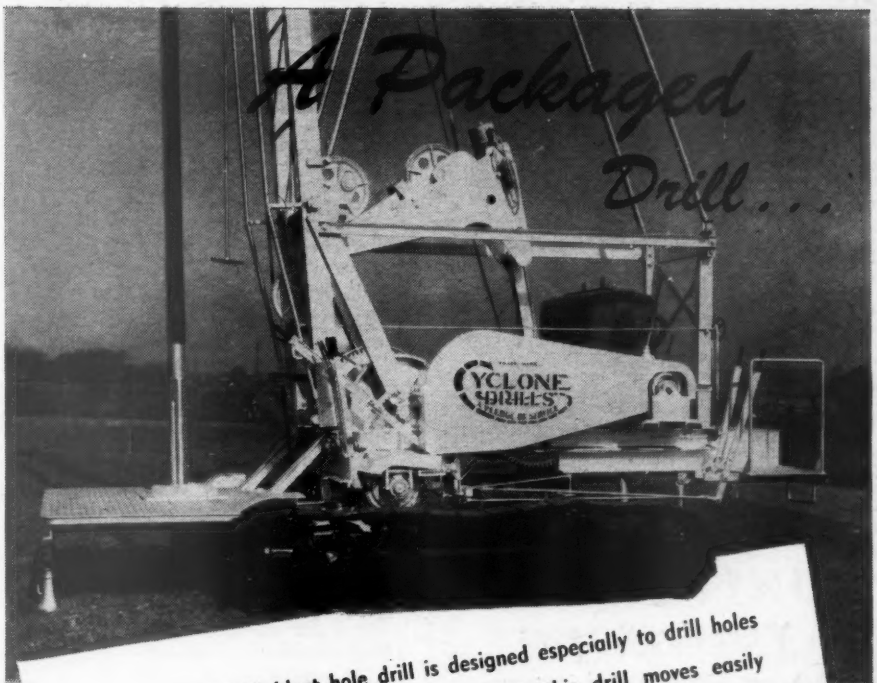
It is well established law that one who sustains an injury as a result of his own negligence cannot recover *damages* from his employer.

For example, in *Biersach v. Wolf Company,* 20 N. W. (2d) 658, it was shown that a pedestrian was struck by a gravel truck on a narrow road. He died as a result of the accident and his dependents sued the truck owner to recover damages for his death.

During the trial the truck operator testified that he did not see the pedestrian prior to the time he was struck, and that the road was very narrow.

The higher court refused to hold the truck owner liable, and said:

"If the jury believed the testimony of the truck operator they were justified in finding the deceased negligent as to the position assumed by him. . . ."



The new #1000 blast hole drill is designed especially to drill holes from 5⅝" to 7" in diameter. Self propelled, this drill moves easily and quickly to any location. Drilling tools can be carried directly on the drill while moving.

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traffic news

CENTRAL FREIGHT ASSOCIATION DOCKET

Docket 86418 (2)—Proposed to establish on stone, fluxing, furnace or foundry, melting or refractory (unburned) in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car furnished, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Quarry, Mich., to Defiance, O., 227 cents net ton. When car of given capacity is ordered by shipper, and the carrier is unable to furnish car ordered and furnishes a car of greater capacity than that ordered, the minimum weight for the car furnished will be that which would have been obtained had the car ordered been furnished and used.

From Durbin, O., to

	Net Ton
Tipp City and Cedarville, O.	$1.20
Batavia, O.	1.61
Lebanon, O.	1.44
West Jefferson, O.	1.27
Milford, O.	1.55
Xenia, O.	1.13

Docket 86451—It is proposed to establish an agricultural limestone, unburned, in bulk, in open-top equipment, carload minimum weight 90,000 pounds unless when for carrier's convenience, a car of less capacity is furnished, in which event the minimum will be the marked capacity of car used.

Docket 86465 (2)—Establish on sand, all kinds, and gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Lima, O., to Bowling Green, O., 139 cents; Findlay, O., 103 cents net ton.

Docket 86466 (2)—Establish on limestone, ground or pulverized, unburned, carload, minimum weight 60,000 pounds, from Piqua, O., to Harries, O., 139 cents net ton, in open equipment; 147 cents net ton in closed equipment.

Docket 86525 (2)—Establish on slag, crushed or crushed commercial (not granulated), a product of iron or steel blast or open hearth furnaces, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Ashland, Ky., to Martins Ferry, O., 254 cents net ton.

Docket 86548 (2)—Establish on sand, all kinds and gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Sargents, O., to Glouster, O., 161 cents net ton.

Docket 86520 (2)—Establish on sand (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding, ground, loam, moulding, moulding-bonded [naturally or otherwise] polishing, pulverized or silica), or gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Ginger Hill and Rupel, Ind., to Michigan City, Ind., 105 cents net ton (applies only on sand and only for team track delivery); Valparaiso, Ind., 105 cents net ton. Proposed rates are terminal rates only.

Docket 86535 (1)—Limestone, agricultural, not ground or pulverized, unburned, in bulk, in open-top cars, carload minimum 90 percent of marked capacity of car, except that when cars are loaded to full cubical or visible capacity, actual weight will apply. (a) Permit following rates on, published in Individual Lines' Tariffs, from Greencastle, Ind., to the following points:

	Per Net Ton Will expire Dec. 20, 1949
Birds, Lawrenceville, and Pinkstaff, Ill.	$1.33
Duncanville and Flat Rock, Ill.	1.11
Robinson, Ill.	.98

(b) Establish on, from Greencastl, Ind., to Birds, Duncanville, Flat Rock, Lawrenceville and Pinkstaff, Ill., 133 cents; Robinson, Ill., 120 cents net ton.

Docket 86544 (2)—Establish on crushed stone, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Georgia, Ind., to:

	Net Ton
Armstrong, Griffin, Martin, New Harmony, Poseyville and Stewartville, Ind.	$1.66
Hovey, Ind.	1.72

WESTERN TRUNK LINE ASSOCIATION

Docket X-E-41-1020—Proposed to establish a rate of $2.00 per net ton on stone, crushed or ground, minimum weight marked capacity of car except that when car is loaded to full visible capacity, actual weight, but not less than 50,000 pounds, will apply, from Alden, Ia., to Minneapolis, Minnesota Transfer and St. Paul, Minn., rate not subject ot X-162 but subject to X-166 increases.

DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION SUBMITTALS

Docket 40884 (2)—Publish rate of 132 cents per net ton from Quarry, Va., to Meade and Pounds, Va., on stone, crushed, carload minimum when in open-top cars 90,000 pounds, except that when car is loaded to full visible cubical or marked capacity, actual weight will govern.

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NEWS OF CONCRETE MANUFACTURERS

Washington Products Assn. Entertains Manufacturers Of Oregon and Canada

The concrete pipe and block manufacturers of Oregon and Canada were guests at the winter meeting of the Concrete Products Association of Washington held in Tacoma on November 12, 1948. Nearly 100 were in attendance at this one-day meeting, which proved to be one of the most interesting and educational programs of the year. George P. Duecy of Everett, president, conducted the business meeting. Guests included members of the staff at the Washington State College, University of Washington, American Concrete Pipe Association, Portland Cement Association, Washington Department of Highways and the City of Tacoma Public Works.

Howard F. Peckworth, managing director of the American Concrete Pipe Association, Chicago, gave a most interesting report on the continually increasing demand for concrete pipe in all lines of construction. In the course of his talk Mr. Peckworth outlined the many activities and research projects of the American Concrete Pipe Association. A. P. Blair, industrial relations specialist, Portland, Ore., spoke on *Labor Relations Pattern for 1949*. He outlined the trend of labor relations with regard to management, labor and government.

Another interesting talk was given by Robert E. Tobin, manager of the Spokane office of the Portland Cement Association. Mr. Tobin discussed concrete masonry developments, describing special types of masonry blocks.

F. M. Kettenring of Seattle and C. S. Seabrook, sewer engineer for Tacoma, discussed the advantages of having records of tests and inspection of pipe for both the customer and the manufacturer.

Various committee reports of interest were given, including one on pumice research progress by J. J. Wegner, Division of Industrial Research, Washington State College, and another on irrigation pipe studies by J. A. Roberson, also of Washington State College.

The committee on arrangements consisted of Chairman Bert E. Harrison, E. L. Warner, James Lundberg, all of Tacoma; Charles Delling of Puyallup, W. S. Wilson of Olympia and Verne Frese of Seattle.

Shastalite Production Soars As New Machine Is Added

Production of concrete masonry block at the Shastalite Block Company, Yreka, Calif., has been boosted from 800 per day to 6,000, according to an announcement made by Clem Baker, president of the firm.

A new Columbia block machine is doing the trick, making units in 8- by 8- by 16-in. and 6- by 8- by 16-in. sizes and in more than 100 types. It can also be used to cut block into smaller sizes.

Mr. Baker founded the company in 1946, using pumice as one of the ingredients of his products. Then he heard about silica-foam—"lava cinder"—which occurs on Mt. Shasta. After making laboratory tests, Mr. Baker decided to substitute this new material because of its high insulation rating.

Ahearn Announces Changes in N.R.M.C.A. Convention Program

Vincent P. Ahearn, executive secretary of the National Ready Mixed Concrete Association, has announced that the manufacturers' reception scheduled for February 15, 1949, at the association's annual convention at New York's Hotel New Yorker will be held on the following evening, February 16 from 6 to 7 p.m. The change was made in order to accommodate another organization with which N.R.M.C.A. has cooperative relations.

This alteration in the date of the reception has necessitated a second change; and Stanton Walker's informal session on the design of concrete mixtures is now scheduled for the evening of February 15 at 8 o'clock.

Coming Events

January 16-20, 1949 — Chicago. 30th annual meeting, Associated Equipment Distributors, Stevens Hotel.

January 27 • 29, 1949 — Detroit. 43rd annual convention, Sand-Lime Brick Association, Hotel Statler.

January 31-February 3, 1949—Cleveland. Annual convention and exposition, National Concrete Masonry Association, Cleveland Auditorium.

February 14-17, 1949—New York. 19th annual convention, National Ready Mixed Concrete Association, Hotel New Yorker.

February 23-25, 1949 New York. 45th annual convention, The American Concrete Institute, Hotel Statler.

March 11, 12, 1949—Richmond, Va. Annual convention, American Concrete Pipe Association, John Marshall Hotel.

Universal Concrete Pipe Adds New Pipe Sizes At Rochester Plant

To help alleviate the shortage of sewer pipe for construction, the Universal Concrete Pipe Company has added the manufacture of small size sanitary sewer pipe in an expansion move at its Rochester (N. Y.) plant.

L. E. Barrett, local sales representative for the company, stated that pipe-making machinery has been geared to manufacture 4-, 6-, 8-, 10- and 12-in. pipe. These are made on a spinner-type machine.

"Previously we concentrated on large reinforced concrete pipe that ranged up to 72 inches in diameter," Barrett said. "In addition to the larger size pipe, we will now produce the small pipe that can be used in sanitary sewer laterals and similar projects."

• Scene in Universal's Rochester, N. Y., plant, where new sizes of sewer pipe now are being made.

For the complete program of the National Ready Mixed Concrete Association's Annual convention, to be held February 14-18 at the Hotel New Yorker, New York, see the main section of Pit and Quarry.

H. X. Eschenbrenner, president of Universal, and his son, H. E. Eschenbrenner, have returned from a business trip in Europe, where they visited concrete pipe manufacturing plants in England, France, Belgium, Switzerland and Germany.

George Schwaab plans to retire soon from his post as sales manager of the Manitowoc Portland Cement Co., Manitowoc, Wis. He joined the staff at Indianapolis in 1917.

Program Makers Announce Features Scheduled for 45th A.C.I. Convention

Except for a few details which will be filled in later, the broad outlines of the American Concrete Institute's 45th annual convention program have been determined. Headquarters will be New York's Hotel Statler, formerly the Hotel Pennsylvania, and dates are February 23, 24 and 25.

The general session on February 23 will deal with (a) regional concrete paving problems of construction and maintenance and (b) air entrainment in concrete. Speakers will include B. D. Tallamy, superintendent of the New York State Department of Public Works; Charles M. Noble, chief engineer, New Jersey State Highway Department; J. F. Barbee, Ohio State Highway Department; and Robert F. Blanks and W. A. Cordon of the U. S. Bureau of Reclamation.

C. P. Siess, Nathan M. Newmark, Frank E. Richart and Robert Glover will present addresses during the second general session on February 24, which will be devoted to structural problems in the advancement of reinforced concrete. This session will be followed by the Institute luncheon. Problems in the production and use of ready-mixed concrete will be considered at the technical session that afternoon.

On February 25 S. J. Chamberlin, chairman, and George W. Washa, secretary, will preside over the annual session of Committee 115 on research. The final session will feature papers on cast-in-place architectural concrete by John J. Hogan, E. B. Oberly and A. J. Boase (co-author), all of the Portland Cement Association. Ralph W. Kluge, Purdue University, will present Bureau of Standards findings on lightweight aggregate concrete.

Richfield Concrete Products Sold to Basalt Rock Company

Equipment at the Richfield Concrete Products Company, Corning, Calif., will be dismantled and sent to Napa, Calif., for re-installation there by the new owners, the Basalt Rock Company. The announcement of the deal was made by Elmer Clary, former owner of the block plant.

Basalt Rock Company officials will utilize the plant building at Corning as a distribution point, with Jack Waldo, former salesman for the Richfield firm, continuing to work in that area.

Charles L. Peyton Promoted By Universal Atlas Cement

Charles L. Peyton has been appointed district sales manager, Illinois-Wisconsin district, effective December 1, 1948, with offices in Chicago, it was announced by Universal Atlas Cement Company, United States Steel Corporation subsidiary.

Mr. Peyton has had a 37-year sales career in the cement industry. During the last 13 years he has been the Universal Atlas sales representative in the district over which he now becomes sales manager.

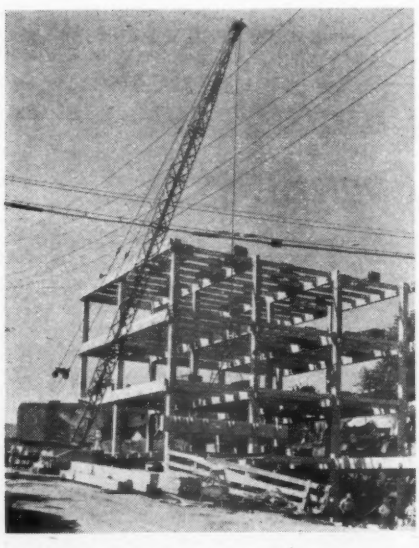
Alpha Portland Cement Co. Promotion for C. H. Schlutow

C. H. Schlutow

Carl H. Schlutow, Belleville, Ill., sales representative of the Alpha Portland Cement Company in central-eastern Illinois has been promoted to assistant district manager at St. Louis, Mo., according to an announcement made by R. L. Mitchell, St. Louis district manager.

A native of St. Louis, Mo., Mr. Schlutow was employed at an early age with the Missouri Portland Cement Company and served in various capacities. In the last seven years he has been actively engaged in the sales activities of the cement business. He became associated in March, 1947, with the Alpha Portland Cement Company.

Concrete and Cinder Block Products of Rochester, N. Y., was awarded a prize in the Rochester district's New York State Insurance Fund accident reduction contest.



• Something new has been added to the building field. Here a new four-story building is being erected rapidly by the Cemenstone Corporation of Pittsburgh, Pa., by using precast concrete beams. The longer precast beams used are the vertical members which extend the full height of the building. These are 53 ft. in length, 16 by 16 in. and weigh 7 tons each.

A 20-ton Lorain "Moto-Crane" is used in the erection of the vertical members, the precast concrete girders, floor beams and stringers. The job is for the Blaw-Knox Company's new building. Beams are cast and handled in a horizontal position until actually ready for erection in the vertical position.

David S. Day Retires from Universal Atlas Cement With 41-Year Record

David S. Day, Universal Atlas Cement Company sales manager at Duluth, Minn., has retired after 41 years of continuous service.

Mr. Day joined the cement company as a salesman in 1907. He began his career with Universal Atlas as salesman at Minneapolis, transferring in 1908 to Pittsburgh, and in 1910 to Chicago. He returned to Minneapolis in 1912 and there in 1914 became office manager. In 1918 he was advanced to assistant Northwestern sales manager and in 1935 was appointed sales manager of the Minneapolis office. Since 1947 he has been sales manager of the Duluth office.

A member of the famed Universal Atlas "Class of 1907," Mr. Day was one of a group of pioneer cement men who contributed much to the company's early activities and its ensuing progress. He helped introduce cement and concrete to the cities and the farms of the great Midwest and Northwestern regions when cement was a rare new building material.

Air Entrainment Main Theme At Michigan Concrete Meet

The central theme of the first annual Michigan concrete conference, held December 1 and 2 at the Michigan State College at East Lansing, was concrete and the principle of air entertainment. About 300 attended the conference, first of its kind to be held in Michigan. The meeting was sponsored by Michigan State's school of engineering, the Michigan state highway department and the Portland Cement Assn.

Among the speakers were the following: William Lerch, P.C.A. research manager; Charles M. Ziegler, Michigan highway commissioner; E. A. Finney, research engineer of the Michigan highway department; Stanton Walker, director of engineering for the National Ready Mixed Concrete Association; and Harry L. Conrad, director of the Michigan chapter of Associated General Contractors.

Photo Display Booth Features Ohio Pipe Firm's Products

One of the most attractive exhibits at the 1948 Public Works Congress in Boston in mid-October was set up by the Universal Concrete Pipe Company of Columbus, O.

This huge photo display booth was manned during the congress by J. M. Millious, advertising and sales promotion, Columbus, and Elmer Leuliette, sales engineer of Universal's Kenvil, N. J., office.

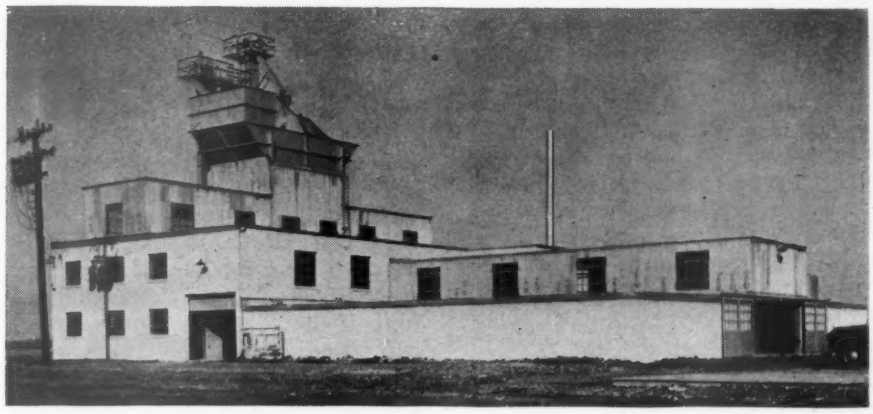
Ronald E. Dodds, an employee of the Universal Concrete Pipe Company at Kenvil, N. J., died on October 1 at Dover General Hospital after a brief illness.

Block Production in 1948

Reports from Producers Indicate New All-Time High Output Of 1,160,000,000 Units---Shortages Still Curtail Markets

A SURVEY conducted by PIT AND QUARRY in the closing weeks of 1948 indicates that the year's production of concrete masonry units was almost 16 percent greater than in 1947. Although not in any sense a dramatic gain, this increase was superimposed on an output of 1,000,000,000 to bring 1948 production up to about 1,160,000,000 8-in. equivalents, a new all-time high for the industry. Although the survey showed gains in all sections of the country, the increases were far from equally distributed, with the East showing almost 30 percent, the West slightly over 16 percent, and the South and Midwest 8 and 6 percent, respectively.

By WILLIAM M. AVERY



• One of the largest and finest new production units to go into service during 1948 was this $250,000 plant of the Texcrete Company at Dallas, Texas. The block machine used in this plant turns out six standard units in each cycle of operation.

Rather surprisingly, most of the national increase resulted from new capacity installed and operated during the year. Producers who contributed data for the survey showed an average capacity increase in 1948 of over 14 percent, distributed geographically as follows: East 18 percent, Midwest 11 percent, West almost 20 percent, and South 12 percent. There is reason to doubt that these increases presented a true picture of the industry's net increase in productive capacity. They seem, rather, to reflect an effort on the part of firmly established producers to take up the slack created by the wholesale departure of postwar opportunists, who found themselves inadequately equipped for competitive operations. Although much of the attrition in plant population took place in 1947, the process very probably continued well into 1948, with the industry in most sections of the country reaching a reasonable balance late in the year.

In spite of the apparent increased output in 1948, the year was not a seller's year in the sense that 1947 and 1946 had been. In many areas there was fully competitive selling throughout most of the year, and one direct result of this was an increased activity on the part of many producers to merchandise their output. Manufacturers of concrete masonry units were not only competing among themselves but with producers of other building materials who were seeking to regain their former share of the materials market. Viewed in this light the block industry's apparent gain in 1948 was particularly significant, in that it clearly indicated that concrete masonry units have won full acceptance on the basis of merit and performance. For the first time the industry had assurance that it could hold its tremendous gains even in a fully competitive market.

The year just closed introduced at least one problem that seemed to have an adverse effect on practically everyone in the industry. The switch to f.o.b. selling by most of the cement industry as a result of a Supreme Court decision, effective at midyear, further complicated the already difficult supply situation, and also jumped the average price about 19 cents per bbl. Some of the producers were able to pass this increased cost on to their customers, but others were trapped by having to purchase from distant mills while their competitors were able to buy from local mills.

Data collected in PIT AND QUARRY's survey of the industry indicated that production in 1948 would have been almost 7 percent higher than it was if all producers had been able to obtain sufficient quantities of cement throughout the year. All sections of the country suffered somewhat in this respect, but the West was most seriously affected, with an apparent loss of almost 15 percent. Not all of the

• Block producers showed increased interest in promoting the use of their products in floor and roof construction. The photograph above shows soffit tile being placed on temporary joists in preparation for pouring permanent reinforced-concrete joists.

production lost due to lack of cement could be charged to the basing point decision, since shortages were bound to occur late in the summer, following the pattern of the last two years. But the change in selling practice created shortages where they had never occurred before. Detailed data on the effects of the Cement Decision are discussed elsewhere in this issue.

Partly as a result of the increased cost of cement, the selling price of concrete masonry units increased in all sections of the country. The national average f.o.b. price advanced from 17.7 cents on January 1, 1948, to 18.7 cents on November 15. In both the East and the Midwest the average price increased from 17½ to 18½ cents, in the West from 17.2 to 18.2 cents, and in the South from 18.1 to 19.3 cents. These figures include both lightweight and heavyweight units, since most of our informants neglected to list separate prices for the two types. A fair number of producers showed no advance in selling price during 1948, but in most cases they were the same producers who showed either no increase in cement cost or a small decrease of 1 to 4 cents per bbl.

The companies which returned our questionnaires reported a total capacity of 45,600 8-in. equivalents per hour. They showed 1947 production of 74,360,000 units, and 86,015,000 in 1948, with an apparent 7½ percent representation of the industry's total capacity. The plants covered by the survey showed an average 1948 output of 1,340,000 units per plant, against 1,140,000 per plant in 1947. The indicated average number of operating hours per machine was 1,930 in the year just closed, as compared with approximately 2,000 in 1947.

Several factors definitely limited the expansion of the market for concrete masonry units in 1948. The shortage of cement already mentioned was not nearly so critical as the shortage of mortar cement for placing the product in walls. Although no data are available to show how much production is being lost due to this factor, there is no doubt that it assumed major proportions in 1948. A number of questionnaires definitely stated that local shortages of mortar cement had placed a ceiling on production in 1948.

Lack of adequate numbers of skilled masons was another contributing factor. In a recent interview E. W. Dienhart, executive secretary of the National Concrete Masonry Association, pointed out that in spite of the Joint Apprentice Training Programs, masons and other skilled mechanics are still not being put to work in sufficient number even to replace losses due to death and retirement. Since the same situation affects all branches of the construction industry, Mr. Dienhart said, any future increase in the volume of construction activity will require a considerable enlargement in the available force of both skilled and unskilled labor. Some easing of the labor shortage may result from increased use of concrete masonry units without plaster or other types of interior finish. Mr. Dienhart pointed out that there is a marked trend toward the use of exposed concrete masonry walls for the interiors of schoolrooms, industrial buildings, theaters and churches, and there is every reason to suppose that such construction will be increasingly accepted in homes.

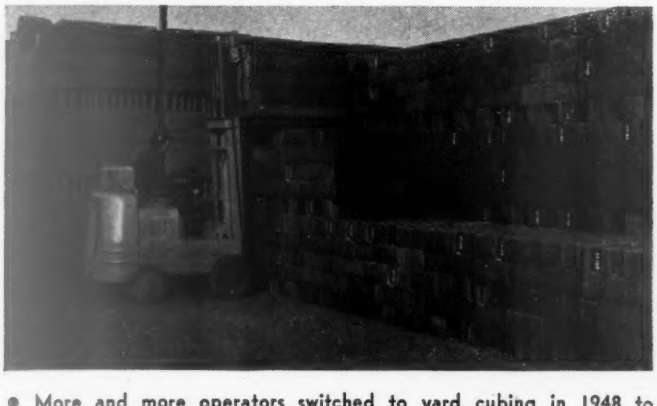
Another factor which Mr. Dienhart feels will ease the effects of the skilled labor shortage is the increased use of concrete masonry units in floor and roof construction. Soffit tile and other types of units are finding increased acceptance in both the home and industrial building fields, and the association is making every effort to encourage its members to develop this potentially large market.

The block industry in 1948 continued to suffer somewhat from the now almost chronic shortage of lightweight aggregates. Lack of adequate quantities of lightweight materials in 1948 undoubtedly limited sales of masonry units in many areas, and there was little hope of any major improvement in 1949. Some new lightweight plants were completed and placed in production during the year, but their combined output was hardly enough to dent the shortage. Against an estimated annual demand for not less than 7,000,000 cu. yds. of all types of lightweight aggregate, current productive facilities are believed to total not more than 1,250,000 cu. yds. per year. As long as this situation continues to exist, the free expansion of concrete masonry units into many fields will be severely handicapped.

On the technical front 1948 was just a so-so year, unmarked by any outstanding advancement in production techniques. There seemed to be increased interest in continuous mixing as opposed to batch mixing, and several excellent machine models were available in this field. One of the leading manufacturers of block machinery was reported to have perfected a super-capacity machine capable of producing 6 standard units in each cycle of operation. Other manufacturers were working along similar lines, and it was a fair assumption that in 1948 block producers would be able to effect

(*Continued on page* 219)

• One company's best promotional investment was the construction of this model concrete masonry office building on the plant property. Various treatments were worked out on the room interiors to show buyers the effects they can obtain with concrete blocks.



• More and more operators switched to yard cubing in 1948 to speed loading and to reduce handling costs. The lift-truck pictured above has a side shifter which enables the operator to set one cube against another without jockeying for position.

Survey Shows Impact of Cement Decision On Producers of Ready-Mix and Block

Data presented herewith from Pit and Quarry's survey of the concrete masonry unit and ready-mixed concrete industries are believed to be the first which show specifically how the Supreme Court decision on the basing point question has affected cement users.—The Editor.

By WILLIAM M. AVERY

IN a 6 to 1 decision handed down on April 26, 1948, the Supreme Court of the United States ruled that the cement industry's multiple-basing-point delivered price system was a collusive price-fixing device which violated the Federal Trade Commission Act[1], the Clayton Anti-Trust Act[2], and the Sherman Act[3]. Since July 9, the effective date of the ruling, all but a few cement producers have sold their product on an f.o.b. mill basis.

It was reasonable to suppose that the change would cause some disruption in the price and distribution of portland cement, particularly in localities remote from mills. In the net, however, the Federal Trade Commission, which instituted the action against the cement industry, insisted that the pricing change would lower the average cost of cement. With no stake in the issues other than a desire to determine and report the facts, PIT AND QUARRY sent out questionnaires several weeks ago to approximately 600 producers of ready-mixed concrete and concrete masonry units. In addition to requesting data on productive capacity, production and other pertinent aspects of their operations, the questionnaires asked producers to indicate the following: 1) loss of production during 1948 due to inability to obtain portland cement; 2) selling price of their products as of January 1 and November 15, 1948; 3) average delivered cost of cement as of July 1 and November 15, 1948. Also included was this blunt question: "Has the Supreme Court decision on the basing point system made it more difficult for you to obtain cement?"

Returns from producers of ready-mixed concrete represented over 8 percent of the industry's production in 1947, or approximately 1,195,000 cu. yds. In the concrete masonry unit field replies were received from companies which accounted for at least 8 percent of that industry's total production in 1947, or roughly 75,000,000 8- by 8- by 16-in. equivalents.

We believe that the tabulated questionnaire returns show with reasonable accuracy how the change in pricing practice has affected two of the cement industry's largest customers. Although the available data represent a relatively small fraction of the total number of producers in each of the consuming industries, there was excellent distribution with respect to both geographical location and size of plant. Perhaps even more important from the standpoint of accurate projection, data were received from plants in both industries which either benefited from the change, or which were at least not adversely affected by it.

Ready-Mixed Concrete

In the ready-mixed concrete industry the national average delivered price paid for cement jumped from $3.01 per bbl. on July 1 to $3.22 per bbl. in mid-November—an increase of 21 cents per bbl. The heaviest increase was indicated by producers in the West, where the average price hopped from $3.43 to $3.75 per bbl. The Midwest, with an increase of 16 cents per bbl. (from $2.77 to $2.93), was least affected, while the East and South were about on a par with increases of 27 and 25 cents per bbl. respectively. A fair number of returns showed lower prices after July 1, and in computing the averages these reductions were taken into account. As against extreme increases of as much as $1.25 per bbl. (probably gray market), however, reductions in cost were seldom more than 4 or 5 cents per bbl.

Although the survey indicates that 1948 production of ready-mixed concrete was almost 27 percent higher than in 1947, all sections of the country showed some loss of potential production due to inability to obtain sufficient quantities of cement. The average for the entire industry was almost 6 percent. The greatest loss (almost 13 percent) was reported by producers in the Midwest, while the South was least with only 2½ percent.

Obviously only a small part of this lost production is attributable to the abandonment of the basing point system, since the change in pricing method affected only the last half of the year. Local cement shortages would undoubtedly have appeared in the late summer months even without the impact of the Supreme Court decision. It seems fairly clear, however, that Uncle Sam's intervention caused the shortages to appear earlier, to last longer, and to affect many areas which might otherwise have come through the year unscathed.

Sixty-four percent of our informants said flatly that the basing point decision has made it more difficult for them to obtain cement. About 34 percent were equally certain that it had made little difference, and the remaining 2 percent hadn't made up their minds. Oddly enough, in the South, which showed relatively little loss of production due to cement shortages, there was almost complete unanimity that the change in pricing practice had made it more difficult to obtain adequate quantities of cement.

The most bitter complaint expressed by many producers of ready-mixed concrete is that the new pricing system has created one-mill monopolies in some areas which were formerly served by two or more mills. This has worked a particularly burdensome hardship on users of cement whose requirements had been largely or entirely supplied by distant mills. Now that these mills have been priced out of their market, cement users are forced to turn to local mills where, as new customers, they have no priority claim of any sort against the limited sup-

[1]The Federal Trade Commission Act authorizes the Commission to prohibit unfair methods of competition. In the cement case the Commission held that the systematic absorption of freight by cement companies was an unfair method of competition.

[2]The Clayton Act, as amended by the Robinson Patman Act, prohibits price discrimination which injures competition. The F.T.C. defines "price" as that portion of what the buyer pays which remains after deducting cost of transportation. Under this definition, a discrimination occurs whenever a product is sold at the same delivered price to two customers located at unequal distances from the seller.

[3]The Sherman Act prohibits all price fixing conspiracies. The F.T.C. charged that the cement companies entered into a conspiracy with respect to the price at which cement was to be sold.

Some of the Comments That Producers Sent Along with Their Questionnaires

"The Supreme Court ruling sure played the devil with the purchasing of cement. The ones we purchased from had a high freight rate and are trying to pull out of territory. The ones with a lower freight rate are not taking on many new customers, at least last year. May be some better next year."

"We can get only 1/3 of our requirements from the mill with best freight rates, which is located at Clinchfield, Ga. Balance of our requirements comes from the Birmingham, Ala., area, which accounts for the difference in price."

"No ready-mix production loss but concrete masonry and concrete pipe production curtailed, due to lack of cement. Prices based on cheapest cement. Have purchased some at 20 cents per barrel higher from cement companies other than our regular suppliers."

"Began to buy locally and lost carload lot priority. At present a local merchant has imported from Belgium and we can get cement from him at $1.25 per 100 lbs. if we go to New Orleans and get it ourselves. Have no license to do this and couldn't do it anyway. Not the PRICE has held us down, but the impossibility to buy. NOW, it's the price which is all out of line. Also, there are two plants in this section and in 1946 we both sold for 18 cents. They sell now for 15 cents, so we sell for 15 cents, too."

"During the month of July, 1948, we were out of cement, thereby lowering our production at least 50,000 block (8-by 8-by 16-in.)

"Manufacturer of cinder block and concrete brick. We feel that the cement decision has affected us mostly by the increased cost of cement. We have lost two days of production for the lack of cement (the first time we have shut down for this reason since 1944), although this could be attributed to the increased demand for cement. However, since cement companies now prefer to sell as close as possible to their mills, we find that one of our old suppliers has shipped us just one minimum car since the decision. As a result, we must beg other, more responsible companies to supply us, even though from a further distance and at a higher cost."

"Due to not being able to get high-early-strength cement, production of septic tanks has been curtailed by 40 percent."

"Competition right across the river in Rock Island and Moline pay about 29 cents per bbl. more than we. UNFAIR!"

"We are located at what you might term the extreme outside edge of the shipping area of several cement companies. This means we must depend on two plants which, because of the basing point price system, govern this territory. One of the companies ships in this town on an exclusive basis, leaving us one company to do business with. They have agreed to give us some cement for next year, about 50 percent of our normal requirements. Now, due to this situation, we must pay the penalty of longer hauls from other plants, providing we can beg them and plead with them to ship us cement. The basing point decision is definitely working a hardship on small businesses like ourselves, who must depend on competitive priced cement for our very existence."

"We think the Supreme Court decision certainly was a contributing factor in causing dislocations in cement shipments, and has certainly increased the price, and directly contributed to increased cost in building, despite the fact that present administration is always demanding lower prices. The professors and economists are certainly doing a disservice to the national economy by this false propaganda."

"We did not lose production on cement blocks due to shortage of cement. We did, however, ship in cement both from the East Coast and from the West Coast which cost us as much as $7.40 net per bbl. We also have a silo manufacturing plant in connection with concrete blocks and a ready-mix plant. We lost several weeks' production on ready-mix concrete due to lack of cement and perhaps 15 concrete stave silos. Do not believe the Supreme Court decision, however, caused the shortage."

"In order to get this production we were forced to purchase cement from Pennsylvania at $4.68 per barrel for 2250 bbls. We also purchased 300 bbls. through gray market channels at $8.00 per bbl. This is certainly outrageous!"

"I don't know if the court decision had anything to do with it, but I couldn't get any cement for over three months this summer, but had no trouble getting it last year from the same company. I called them many times and all I could get was excuses and no promises. It seems the cement companies won't take any orders for cement a year in advance, so we would be short of cement when it got scarce. If cement is cut off next year, I'll have to raise my price to make the same money in 9 months I do in 12 or make a lot more blocks per sack."

"Our production could have been increased by 28,000 to 30,000 units if we had not run out of cement."

"We are very fortunate in being 2½ miles from a cement mill. There is a switching rate which enables us to save 10 cents per M. However, this mill does not make high-early and should we need it, the price is up 56.4 cents per bbl. from last year."

"Cement plants which are more distant from our plants are no longer interested in trying to supply our requirements. They feel we will drop them for lower-priced cement when things return to normal."

"Due to the shortage we were required to use bag cement, which further increases costs in addition to freight differential, since most economical supplier was unable to supply us."

"In past years we have had several cement companies try to sell us, but now competition has been completely eliminated, due to the current f.o.b.-plus-freight price rates. The cement shortage, of course, is a contributing factor to this, but we have always been able to get cement from three different concerns even with this shortage until they were priced out of our area. This is the situation generally in the Toledo area."

"Our current cement purchases are from the same two companies we were buying from July 1. The $3.48 and $3.72 are from two mills of the same company, due to freight differential. This company does not ship more than half of our cement from the mill nearer us. The company charging ($)3.35 ships less than one-third of our requirements."

"Our competition has gone not of business and his machines are for sale on account of lack of cement."

"We got only four cars of cement from our regular supplier and one from Pennsylvania up to July 6th. Have had none since except that bought from truckers at $1.40 a sack, who buy in San Antonio, Kansas, and Corpus Christi, and haul it into Dallas. Even local lumber yards are unable to buy their former quota locally. Plenty of cement available from out of town at $1.30 to $1.50 a sack from trucks, though."

"Something rotten somewhere and some one ought to investigate the whole stinking situation."

"Since no one cement mill is able or in a position to satisfy our cement requirements, we are obliged to buy from different sources. Of necessity, therefore, we are paying two prices for cement, which condition did not exist prior to the decision of the Supreme Court. Also, regardless of whom we purchase our cement from, we are paying a minimum of 8 cents per bbl. more than our two nearest competitors less than 10 miles distance from our plant. This is due to the Supreme Court decision."

"Although we could use additional machinery to increase production, we can not see where it will be a paying proposition with our cost so high. We made a profit of 9 percent in 1946, a net of 1.8 percent in 1948. Cement and freight are the major factors in increasing our cost. New York state mills are close to us and we could get a car of high-early cement for $3.64 per bbls. This year we obtained two cars from New York state out of approximate purchase of 125 cars, balance coming from the Lehigh Valley at $3.88 per bbl."

"Cement mill supplying me withdrew from territory and I have not been able to make new connections. All cement now being bought on gray market but production has practically ceased. If I am able to make connection as I anticipate, will run to capacity and increase capacity. Otherwise will stay shut down."

"We have been forced to take cement from large distances at higher prices. One mill completely stopped shipping into this territory. Normally we would not be shut down in winter and cement supply would be plentiful, but this winter will see this territory short all during the cold months. Our plant is in the Southwest Rocky Mountain area, which I believe has been more short of cement than any other area. The Supreme Court decision immediately jumped the price of cement to us 60 cents per bbl."

"IT IS A MESS! We don't know what price to figure so when we make a bid we use the higher price. That is a mess, too! Usually the lumber yards furnish cement for MORTAR. (We do not have it for SALE at all.) Now many jobs are suffering for enough cement to lay up our blocks and orders are being held up for WEEKS. Shortage of cement is going to hurt us in that regard and quick. Can't sell block when it is impossible to lay them up."

A Dissenting Opinion

"As a long time sufferer, we know the viciousness of phantom freight. We are completely opposed to any deal that would bring it back. As we interpret the court decision in controversy, we are certain that cement companies, so wishing, can legally meet existing competitive prices. In our opinion the court has said 'No' to phony basing points, collusion, and phantom freight. We question that present selling practices of the cement industry reflect a proper interpretation of the Supreme Court decision."

plies available. This situation very probably accounts for some of the extreme price increases reported. Unable to purchase local cement, the user goes back to his former supplier, pays the f.o.b. mill price, and takes the freight wallop in order to stay in business.

Concrete Masonry Units

An almost identical pattern is shown by the survey for the concrete masonry unit industry, in which the average delivered cost of portland cement increased 19 cents per bbl. after July 1—from $3.13 to $3.32. As in the case of ready-mixed concrete, Western manufacturers of masonry units seemed to be taking the worst beating. The average price reported jumped from $3.06 per bbl. to $3.58, or 52 cents per bbl. Since the figures are based on a sample representing 1947 production of only 12,000,000 units, there is a distinct possibility that the pattern is distorted, but there is no reason to doubt that in the wide open spaces of the West, f.o.b. mill pricing hits with maximum impact.

In the South the indicated increase was 22 cents per bbl. (from $2.99 to $3.21); the Midwest showed a 14-cent increase (from $3.16 to $3.30 per bbl.); and the East was least affected, with a jump of only 12 cents (from $3.31 to $3.43 per bbl.). Greater extremes were reported by block producers than by producers of ready-mixed concrete. For example, two producers located in Texas and Louisiana showed increases of $1.28 and $1.13 per bbl. respectively. The Texas return definitely stated that the higher figure represented gray market purchases, and it must be assumed that the same explanation applies in the other instance. About 12 percent of the questionnaires showed lower cement prices after July 9. The decreases ranged from as little as 1 cent per bbl. to as high as 37 cents. In every such instance, however, it developed that the user's plant was located practically in the shadow of a cement mill—or so close to one, at any rate, that the elimination of phantom freight could not fail to lower the delivered price.

Seventy percent of our informants in the block industry agreed that the abandonment of multiple basing point selling had made it more difficult for them to obtain adequate quantities of cement. However, production statistics which were included in the questionnaire indicated that the industry's 1948 output might top 1947 by almost 16 percent. Since there were cement shortages in 1947, some part of the increased distress in 1948 must inevitably be charged to increased consumption.

Figures submitted on loss of production due to lack of cement indicate that 1948 output of the entire industry would have been almost 7 percent higher if there had been adequate supplies of cement. The greatest loss (almost 15 percent) was reported by block manufacturers in the West. In the Midwest the reported loss was a little more than the average for the nation, and in the South it was slightly less. Eastern manufacturers seemed to be least affected; their average loss of production was only about 1 percent.

One definite and foreseeable result of the increased cost of cement was a general price increase on both ready-mixed concrete and concrete masonry units. The average base price of ready-mix increased 66 cents per cu. yd. during the year (from $10.23 to $10.89 per cu. yd.). This increase was fairly uniform in all sections of the country, with the West reporting 52 cents, the Midwest 64 cents, and the East and South 70 and 71 cents respectively. The average year-end prices reported in each of the sections were as follows: East, $10.52; Midwest, $10.62; West, $10.33; South, $11.68. About 26 cents of the average 66-cent increase was directly due to the jump in the cost of cement.

The returns show a 1-cent increase in the average price of an 8- by 8- by 16-in. concrete masonry unit (from 17.7 cents per unit at the beginning of the year to 18.7 at the close). All sections of the country showed very nearly the same increase with the exception of the South, where the price advance averaged close to 1.2 cents. Year-end selling prices in the various sections were as follows: East, Midwest and West all approximately 18.5 cents; South 19.3 cents. Increased cost of cement accounted for about one-fifth of the average increased selling price of the product.

The questionnaires seem to show rather conclusively that for the moment, at least, the basing point decision has adversely affected two industries which consume a sizable share of the nation's annual output of portland cement. We estimate that in 1947 26,000,000 bbls. of cement went into ready-mixed concrete and an additional 10,000,000 bbls. into concrete masonry units. The total is almost 20 percent of the cement produced in that year. The increased cost of cement for the two industries will amount to about $7,500,000 annually — not a colossal figure, but certainly a definite upward nudge for the over-all cost of construction.

Many of the difficulties resulting from the switch to f.o.b. mill pricing are a direct result of poor timing. To impose such a sweeping change on an industry already straining at the seams to cope with unprecedented demand for its product was to invite trouble. Multiple-basing-point selling has been an established institution in the cement industry for about 50 years, and in that entire half century it seems unlikely that the government could have chosen a worse year than 1948 to blast the system.

Some of the more acute price and supply difficulties will probably be straightened out, or at least modified, by eventual redistribution of markets. We can't, however, see this happening on any large scale until the demand for cement eases off or the supply of the material increases. Neither of these possibilities seems very likely to develop in the near future.

The most acute distress is found among ready-mix and block producers who have been buying cement from distant mills while their competitors have bought from local or nearby mills. Those buying from distant mills have had their production costs increased by the additional cost of transporting cement, while their competitors may actually have experienced a reduction in costs by reason of purchasing from local mills. Since most mills are at the moment not interested in taking on new customers, the distant buyer finds himself out in the snow; if he tries to pass the increased cost on to *his* customers, they go to his competitor, whose costs are now actually lower than they were; if he attempts to absorb the increase in order to remain competitive, he goes broke.

What happens to cement users in localities remote from *any* mill is still a moot question. A few of our informants said flatly that they will close up shop and quit. We find it hard to believe that this will happen on any large scale, once the problem of supply has been straightened out. Cement will surely cost more in such localities, but users of the end product (concrete) will undoubtedly get accustomed to the idea. Unless we are very badly mistaken there is no immediate danger that ready-mixed concrete or concrete masonry units will be

(*Continued on page* 217)

PROGRAM

NATIONAL CONCRETE MASONRY ASSOCIATION

29TH ANNUAL CONVENTION AND EXPOSITION

January 31, February 1, 2 and 3, 1949

CLEVELAND PUBLIC AUDITORIUM, CLEVELAND, OHIO

MONDAY, JANUARY 31

8:30 A.M. Registration all day
10:00 A.M. Convention opens—George W. Katterjohn, President, Presiding
President's Address
Report of Treasurer
Report of Executive Secretary—E. W. Dienhart
Report of the Noble Award Committee
Report of Nominating Committee
Election of Directors
Apprentice Training—How We Helped Develop An Effective Program—Deane R. Lynde, Cinder Concrete Products, Inc., Denver, Colorado
The Concrete Industries Exposition will be open from 1:00 P.M. until 8:00.

TUESDAY, FEBRUARY 1

8:30 A.M. Registration all day
Merchandising Program for Large, Medium and Small Size Plants—W. D. M. Allan, Portland Cement Association.
The Merchandising Program of a Company Located in a Small City—E. E. Osborn, The Clinton Construction Company, Wilmington, Ohio
Our Approach to Opening a Market for Concrete Masonry Units in a Medium Size City—R. L. Humbarger, Masolite Div., General Dredging Company, Inc., Fort Wayne, Indiana
A Detailed Outline of a Planned Merchandising Program—Fred W. Reinhold, Anchor Concrete Products, Inc., Buffalo.
Labor Relations—Our Problem and Yours—Vincent P. Ahearn, National Ready Mixed Concrete Association, Washington, D. C.
The Concrete Industries Exposition will be open from 1:00 P.M. until 5:00

WEDNESDAY, FEBRUARY 2

8:30 A.M. Registration all day
Report of Director of Engineering—R. E. Copeland
Promoting Concrete Joist—Concrete Filler Block Floors—P. M. Woodworth, The Waylite Co., Chicago, Ill.
Prestressed Reinforced Concrete Masonry Walls, Floors and Roofs—A. G. Streblow, and D. O. McCall, Basalt Rock Co., Inc.
Panel Discussion on The Problem of Obtaining Greater Production From Existing Plant Facilities Increasing the Rated Output of Block Machines and Collateral Equipment—Ralph Reiner, Cleveland Builders Supply Co., Cleveland Ohio
Achieving Higher Production Goals with Better Management and More Efficient Labor Utilization—N. C. Castronova, Rockland Concrete Sales Co., Inc., Ridgefield, New Jersey
Cushioning the Effect of Slow Delivery and Shortages of Cement and Aggregate—A. E. Lloyd, Alabama Cement Tile Co., Birmingham, Alabama
Maintaining Equipment for Maximum Production Every Day—W. J. Oliver, Jr., Rouge, Louisiana
The Concrete Industries Exposition will be open from 1:00 P.M. until 8:00.

THURSDAY, FEBRUARY 3

8:30 A.M. Registration to 12:00 Noon
Practical Instrumentation in Block Plant Operation—Morris Gross, Concrete Curing Corporation, Detroit, Michigan
Selling Concrete Masonry with Amateur Motion Pictures — Glenn C. Barnes, Barnes & Cone, Syracuse, N. Y.
Applying the Principles of Modern Lighting to Concrete Block Plants—R. L. Dechant, General Electric Company
How We Capitalized on a Concrete Masonry Demonstration House—A. Harry Wagner, Plasticrete Corp.
Radiant Floor Heating with Concrete Masonry Floors—Philip Buehner, Buehner Cinder Block Co., Salt Lake City, Utah

EXHIBITORS

COMPANY	PRODUCT	BOOTH NUMBERS
American Sta-Dri Co. Brentwood, Md.	Waterproofing compounds	6
J. W. Appley & Son, Inc. St. Petersburg, Fla.	Complete line of concrete block plant equipment	147 to 150
Art Stone, Inc. Akron, O.	Architectural faced concrete masonry unit	51
Barrett-Cravens Co. Chicago, Ill.	Lift-trucks	52
Bergen Machine Tool Co. Nutley, N. J.	Block machine parts	156, 157
Besser Manufacturing Co. Alpena, Mich.	Complete line of concrete block plant equipment	97 to 100, 111 to 114
Blaw-Knox Company Pittsburgh, Pa.	Bins and batching equipment	135, 136
Butler Bin Company Waukesha, Wis.	Bins and batching equipment	78
Cedar Rapids Block Co. Cedar Rapids, Ia.	Durowall reinforcing for masonry walls	90
The Celotex Corporation Chicago, Ill.	Lightweight aggregate	50
Chain Belt Company Milwaukee, Wis.	Truck mixers	102 to 105
Chicago Pneumatic Tool Co. New York, N. Y.	Air compressors, electric tools	91
Cleveland Vibrator Co. Cleveland, O.	Vibrators for block machines, bins, etc.	158-A
Clinton Machine Company Clinton, Mich.	Gasoline engines	119
Clipper Mfg. Co. Kansas City, Mo.	Concrete masonry saws	106, 107
Coast Metals, Inc. Canton, O.	Hard-facing welding products	154
Commercial Shearing & Stamping Youngstown, O.	Cored pallets for concrete block machines	81, 82
Concrete Chicago, Ill.	Publication	Not assigned
Concrete Machinery Co. Hickory, N. C.	Ornamental concrete molds	63
Concrete Manufacturer Chicago, Ill.	Publication	54
Concrete Products Chicago, Ill.	Publication	110
Concrete Transport Mixer Co. St. Louis, Mo.	Complete line of ready-mixed concrete plant equipment	88, 89, 122, 123
Daybrook Hydraulic Corp. Bowling Green, O.	Dump bodies for delivery of ready-mixed concrete	83 to 85
Domine Automatic Machinery Rochester, N. Y.	Concrete block machine accessories	155
Dow Chemical Co. Midland, Mich.	Magnesium pallets	101
Erickson Special Equip. Mfg. Minneapolis, Minn.	Lift-trucks	59
Erie Steel Construction Co. Erie, Pa.	Bins and batching equipment	138

COMPANY	PRODUCT	BOOTH NUMBERS
Fleming Mfg. Co. St. Louis, Mo.	Complete line of concrete block plant equipment	87, 124
F. C. George Machine Co. Orlando, Fla.	Complete line of concrete block plant equipment	75, 76
Heltzel Steel Form & Iron Co. Warren, O.	Bins and batching equipment	118
Hercules Steel Products Co. Galion, O.	Dump bodies for delivery of ready-mixed concrete	108, 109
Jackson & Church Co. Saginaw, Mich.	Complete line of concrete block plant equipment	79, 80
Jaeger Machine Company Columbus, O.	Truck mixers	130 to 133
C. S. Johnson Company Champaign, Ill.	Bins and batching equipment	92, 93
Kent Machine Company Cuyahoga Falls, O.	Complete line of concrete block plant equipment	49, 86
Koehring Co. Milwaukee, Wis.	Bins and batching equipment	92, 93
Lith-I-Bar Company Holland, Mich.	Complete line of concrete block plan equipment	94 to 96, 115 to 117
Master Builders Company Cleveland, O.	Concrete admixtures, paints, waterproofing, etc.	120, 121
Masters Chrome Service Inc. Cleveland, O.	Hard surfacing for mold boxes	53
Maxon Construction Co. Dayton, O.	Dump bodies for delivery of ready-mixed concrete	161, 162
Medusa Portland Cement Co. Cleveland, O.	Portland cements, concrete paints and waterproofing	126
Merchants Chemical Corp. Chicago, Ill.	Protective coating for concrete block racks	74
Leslie C. Miller Sply. Inc. Bedford, O.	Concrete block machinery	4
Mortarless Tile Machine Co. Los Angeles, Calif.	Concrete block machine	137
Multiplex Concrete Machy. Co. Elmore, O.	Complete line of concrete block plant equipment	60, 61, 62
The Gene Olsen Corporation Adrian, Mich.	Complete line of concrete block plant equipment	55 to 58
Oswalt Engineering Service Corp. Forest Park, Ill.	Concrete block machine accessories	129
Ransome Machinery Div., Worthington Pump & Machy. Dunnellen, N. J.	Truck mixers	127, 128
Reynolds Metals Co. Louisville, Ky.	Aluminum architectural roof for masonry buildings	64, 65, 70, 71
Santa Fe Pumice Co., Inc. Santa Fe, N. M.	Lightweight aggregate	5
Albert F. Schaefer Rochester, N. Y.	Concrete block estimating tables	158-B
Service Caster & Truck Co. Albion, Mich.	Attachment for lift-truck forks	72, 73
Solvay Sales Division, Allied Chemical & Dye Corp. New York, N. Y.	Calcium chloride	153
Standard Dry Wall Products Co. New Eagle, Pa.	Masonry paint	159, 160
Stearns Manufacturing Co. Adrian, Mich.	Complete line of concrete block plant equipment	66 to 69
Symons Clamp Mfg. Co. Chicago, Ill.	Concrete wall forms and reinforcing accessories	152
Tamms Silica Company Chicago, Ill.	Concrete colors, paints, special aggregates, waterproofings, etc	151
Towmotor Co. Cleveland, O.	Lift-trucks	139, 140
Truck-Man, Inc. Jackson, Mich.	Lift-trucks	125
Universal Door Carrier, Inc. Indianapolis, Ind.	Curing kiln door and door carriers for concrete block plants	134
White Motor Co. Cleveland, O.	Motor trucks	141 to 146
Yale & Towne Mfg. Co. Philadelphia, Pa.	Lift-trucks	77

Winners Announced For Nat'l Ready Mixed Assn. Safety Contest

Winners have been announced in the 1947-48 Safety Contest of the National Ready Mixed Concrete Assn., Washington, D. C. The winning company in Class A (companies producing more than 40,000 cubic yards of concrete during the contest period) is Lubbock Building Products Co., 214 Avenue M., Lubbock, Texas, which had only one property damage accident during the contest period. The second place company in Class A has an identical score and accident record with the winner. Such a possibility was foreseen prior to the start of the contest and it was decided that in the case of identical scores, the company with the largest combined total of cubic yards of concrete produced and man hours worked during the contest period would receive the highest ranking. The runner-up, with only a slightly smaller total of cubic yards produced and man hours worked, is Eberts Brothers Company, 2439 Van Alstyne Blvd., Wyandotte, Michigan.

The combined total of man hours worked and cubic yards produced also determined the winning company in the Class B competition (companies producing 40,000 cubic yards of concrete or less during the contest period.) The winner of the Class B competition is Pocahontas, Inc., Salisbury, Maryland, which had a perfect, accident-free record. Nine other companies in the Class B competition also had accident-free records, for which they receive honorable mention. The names and addresses of these companies are:

Mesaba Construction Co., Hibbing, Minn.;

Grand Junction Building Materials Co., Inc., Grand Junction, Colo.; (Winner of last year's Class B competition.)

The Trumbower Co., Inc., Nazareth, Pa.;

Builders Concrete Co., Clinton, Okla.;

J. H. Beers, Bangor, Pa.;

Certified Ready Mix Concrete Co., Keokuk, Iowa;

Vineyard Redi-Mix Concrete Co., Vineyard Haven, Mass.;

Grand Haven Ready-Mix Concrete Co., Grand Haven, Mich.;

Monroe Ready Mix & Material Co., Monroe, Wis.

Greater interest was shown in this contest than in the preceding year, 91 companies submitting reports compared to 73 in the 1946-47 contest. These 91 companies produced 7,637,368 cu. yds. of concrete in the year ended June 30, 1948. Bronze plaques will be presented by PIT AND QUARRY to the two winning companies at the coming convention of the industry.

T. H. Johnson, nationally known as a pioneer in the development of concrete pavement techniques, died recently at his home in Sioux City, Ia. Mr. Johnson held several patents, including one on the Johnson method, a finishing process for paving which he had perfected.

Southeastern N.C.M.A. Convention Attracts Producers from 28 States

MORE than two hundred concrete products men and their wives, manufacturers' representatives and cement company salesmen swapped shop talk at the Southeastern Regional Meeting of the National Concrete Masonry Association. The third in this series of annual Southeastern products meetings was held in Miami Beach's Hotel Robert Richter, November 8, 9, and 10. Complete tabulation of registrations showed that representatives of 78 concrete products plants from 28 states attended the three-day session.

That all business meetings were well attended, despite the lure of the balmy Florida skies and tempting waters and links, redounds to the credit of the men who organized the meeting and spoke before the assembly and the guests who frequently added their ideas to the open discussions.

George W. Katterjohn, president of the National Concrete Masonry Association, and motivating inspiration behind the 1948 series of regional meetings of products men, opened the Monday morning session by introducing the Florida hosts. Hamilton Lott's paper, *Concrete Brick—Important to The Products Plant*, rounded out the first day's business activities. Mr. Lott is associated with Palmetto Quarries of Columbia, S. C.

George J. Votaw, architect of Palm Beach, Fla., urged that concrete block producers step up promotional campaigns slanted to sell exposed concrete masonry, asserting that buyers were wary of block construction. Good merchandising, he said, will eliminate much of this wariness. Further discussion of *An Architect's Opinion of Concrete Masonry Units—Structurally and Architecturally* brought out that reinforced concrete joists up to 40-ft. lengths are now in use and that concrete joists of 16-ft. lengths are competitive in price with lumber construction. Approximately 60 percent of concrete masonry construction, said Mr. Votaw, represents labor costs, while only 40 percent can be charged to materials. Architects everywhere are only beginning to realize and appreciate the economy and value of concrete masonry construction.

Expressing a contractor's viewpoint, Frank Rooney, president of the Florida Builder's Exchange, said that his colleagues were well satisfied with concrete masonry products. It is time he asserted, that we stop apologizing for the apparent high price of construction. Admittedly, construction costs have gone up but so has everything else, and in many instances the buyer is getting more value for his construction dollar today than he would if he were to purchase commodities like shoes, grains, eggs, etc.

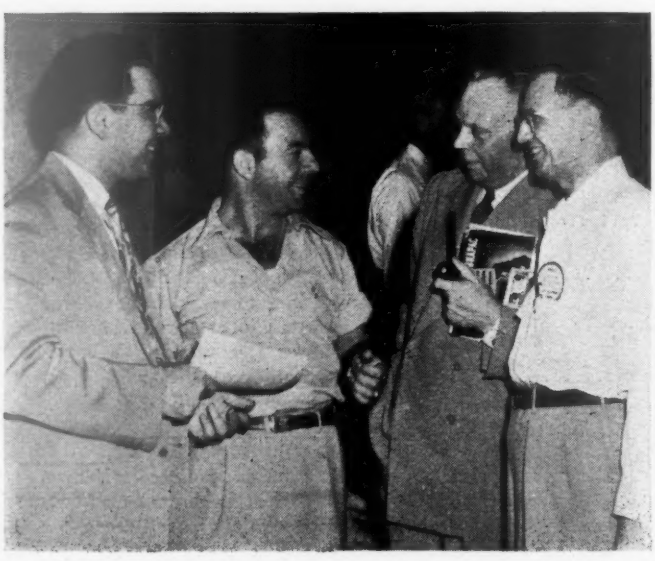
Unless the bottom drops out of everything, said Mr. Rooney, there is no reason for prices to decline. "The right time to build," he asserted, "is when you need the construction."

E. W. Dienhart and R. E. Copeland, executive secretary and director of engineering, respectively, of the N. C. M. A., summarized the 1948 efforts of the association. Mr. Dienhart expounded the many values of membership in the national organization. Mr. Copeland reported on the initial results of tests made on concrete treated with different admixtures, including fly ash, calcium chloride, Pozzolith, Darex AEA, and Plastiment.

In addition, the association is investigating the qualities of magnesium pallets. Mr. Copeland said that ten pallets are in use in each of 14 plants.

Carl Munzel, chief of the products bureau, Portland Cement Association, handed out some practical hints on the production and marketing of high-quality concrete masonry units.

The masonry producer is responsible for producing quality walls. No matter what pressure is exerted upon the producer for "hurry-up" delivery, he must not compromise himself or his product by failing to meet at least standard specifications.



• Philip Paolella, Plasticrete Corp., Hamden, Conn.; Sal Picone, Picone Bros., New York; George Agar, Atlas Products, Ltd., Buffalo, N. Y.; Fred Reinhold, Anchor Concrete Products Co., Buffalo, N. Y.

• An informal chat between sessions. Left to right: George Katterjohn, president of N.C.M.A.; Mrs. Katterjohn; Paul Anderson, Maule Industries, Miami, Fla.

• Some of the 200 members who attended the sessions, on the steps of the Hotel Robert Richter, Miami, Fla., convention headquarters.

The products industry, he said, has a *prima facie* responsibility to produce quality masonry units. In turn, the architect and contractor have an equal responsibility to see that the product is used correctly.

Other speakers on the Wednesday program included J. L. Hart of the Hart Concrete Products Co., Tampa, who spoke on *Laboratory Control of Manufacturing Processes as a Guarantee of Quality and a Tool in Merchandising*; T. W. Clarkson, Dunbrik Co., St. Petersburg, who reported on *Push Button Control of Cement, Aggregate Handling and Mixing of Concrete*; William Ketchin, Ketchin Concrete Products Co., Ft. Lauderdale, who covered *Colored Precast Concrete Floors, an Outstanding Feature of the Concrete House;* Don Levey, Tops-All Roofing Co., Miami, who reported on *The Manufacture of Concrete Roofing Tile and its Application;* and Fred W. Bamman, Maule Industries, Miami, who talked on *Production of Specialty Concrete Products, an Aid to the Concrete Masonry Manufacturer.*

In addition to the excellent technical sessions (which were held in the mornings) a field trip was arranged for one of the afternoons to give out-of-town visitors an opportunity to see some of this country's most modern plants manufacturing a diversified line of concrete masonry products. Five different plants in the Miami area were visited.

Survey on Cement Decision

(*From page* 213)

priced out of the building market in any locality where they are now established.

One of the advantages claimed for f.o.b. selling is the elimination of cross-hauling between different producing areas. In our judgment any gain resulting from this is more than offset by the fact that in the process some sellers inevitably achieve local monopolies in their natural freight-advantage territories. Where this happens, it would seem that the seller winds up with a relatively free hand in respect to the price he will charge, the kind of service he will render and the quality of the product he will market. We firmly believe that in the long run this will prove to be as bad for the cement industry as it has already proved to be for the large numbers of its customers.

There is to date no indication of what recommendations will be made to Congress by the Capehart Trade Policies Committee. In an address presented at the midyear board meeting of the Associated General Contractors of America, William Simon, general counsel for the Committee, had this to say:

"We must seriously and carefully determine when it is to the best interests of our free-enterprise competitive system to refuse a seller the right to compete at any time or at any place by meeting the lower bid of his competitor through freight absorption. We must consider the effect upon our national economy of any pricing policy which prevents a seller from going into the territory of a competitor in any part of the country to compete for the available business by meeting the lowest price of the seller then serving the territory.

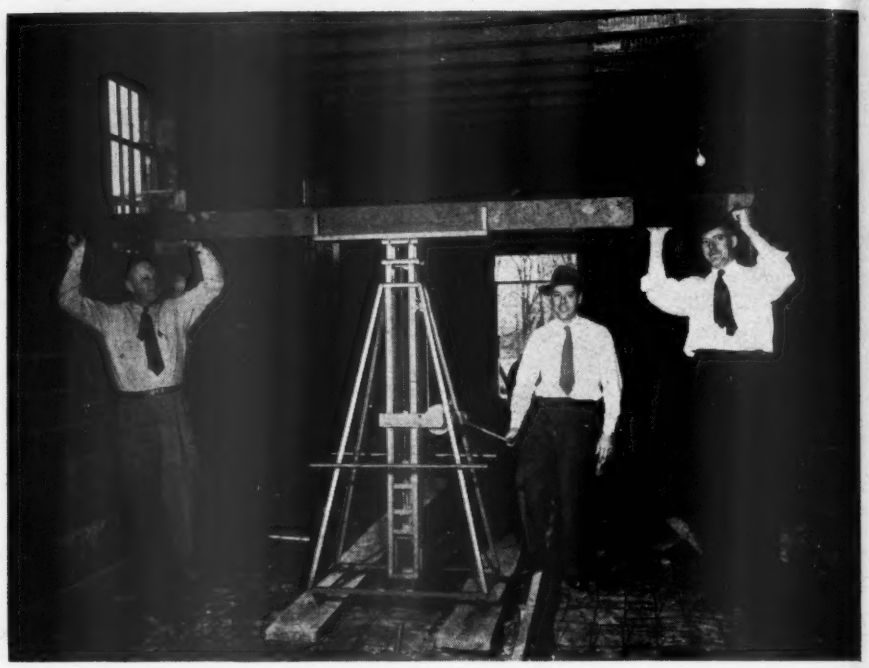
"On three occasions the Congress has been asked to pass legislation outlawing uniform delivered prices and all forms of systematic freight absorption. On each occasion it has declined to pass such legislation. It is my feeling that Congress can no longer avoid the task of determining what pricing policy is best for the nation . . . I am sure that the Committee's report will recommend only the lawful use of that pricing system which will best promote the national economy and our free enterprise competitive system."

Telescopic Joist Eliminates Conventional Shoring

STANDARD concrete filler blocks in combination with cast-in-place joists and slabs have inherent practical and economical advantages as a floor and roof construction material. However, until recently, the use of this type of material had been slowed down by the lack of a practical method of supporting the filler during placement. Today this problem has been rather neatly solved by the use of a new telescopic joist which provides the required support for the placement of concrete soffit tile without resorting to the costly shoring and forming that has heretofore been necessary. This device, known as the Acrow Telescopic Center, has been used in Britain for several years, and is now being distributed in this country by the Besser Manufacturing Co. through leading concrete block manufacturers.

These telescopic joists may be adjusted from a minimum length of 10 ft. to a maximum of 16 ft. by a simple pinch bar operation. At both ends of the Acrow joist there is a ⅛-in. load-bearing plate which may be extended or retracted by a cam arrangement. Turning these cams to the fullest possible extent locks the bearing plates so that there is no possibility of the joist falling back into the building.

To use the Acrow Telescopic Center in constructing a ceiling, which we'll assume measures 14 ft. between load-bearing walls, the procedure is as follows: The inner sections of the telescopic joist are expanded to 14 ft. with the bearer plates retracted. Then the unit is raised between the walls, either manually or with the assistance of a mechanical holding fork, to the level of the ceiling where the end cams are turned so as to extend the bearing plates onto the walls. The telescopic center is now suspended on the two walls or members.



• Telescopic centers may be elevated to ceiling height either manually or with a mechanically-operated extensible holding fork.

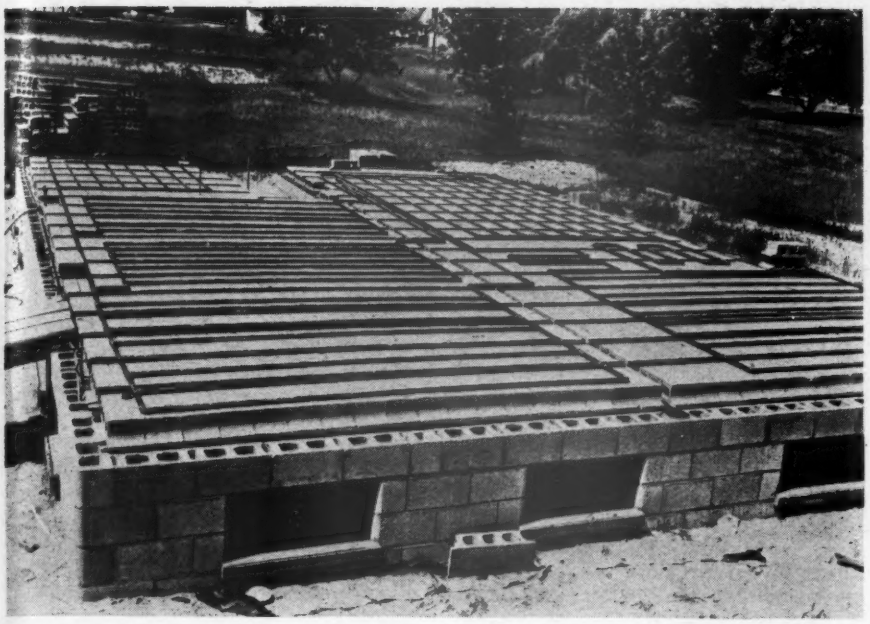
Exactly the same cycle of operations is then followed with succeeding telescopic joists, placing them at 21-in. centers—the 21 inches being the length of the bottom section of a standard soffit tile.

The soffit tiles are placed by laborers on the telescopic centers with the leading edge placed so that the first joist is covered completely while the second telescopic center and each succeeding one are only half covered by any single soffit unit. In order to maintain a uniform texture in the ceiling surface, the placing of the soffit tiles is continued across the full span of the floor, either end to end or staggered. When staggered the 1-in. thickness of the web of each block is figured as a part of the beam when computing beam strength.

When the whole floor has been covered with soffit tile, the reinforcing bars are laid in position. The

• Series of telescopic joists in place, ready to be covered with filler block. These units may be adjusted from the minimum length of 10 ft. to the maximum of 16 ft.

• Workman laying soffit filler block. Each joist is held in place by means of bearer plates which extend over and rest on the supporting walls.



• Section of floor with soffit tile and radiant heating pipes in place, ready for concrete floor to be poured over them. Core openings in the filler tile are ideal for placing conduits.

• The bearer plates which support the joist are extended or retracted by a cam arrangement manipulated with a cam turning key.

next step is to place the service lines. If radiant heating is used, the coils are laid on top of the soffit tile with the exception that, where 6-in. mesh reinforcing wire is used, this goes under the heating coils.

The whole floor area is then covered with a slab of concrete to a depth ranging from 1½ to 3 inches. In this setup the cast-in-place concrete joists measure 5 in. wide by 6 in., to 8 in. high, with a cross sectional area of 30 to 40 sq. in. This is the normal type of roof for spans up to 20 ft., the standard soffit filler block being 21 in. long, 8 in. wide, and 5⅝ in. deep. For longer spans a deeper soffit tile is required.

After the concrete has set, the telescopic centers are removed by retracting the two bearer plates and lowering the unit to the ground. If it is desirable to remove some of the telescopic joists before the concrete is completely cured, it is possible to remove every alternate center four or five days after pouring.

Acrow adjustable steel floor centers provide a modern and economical temporary framework for floor construction using soffit filler block. The advantages of using this floor centering units are obvious to the contractor who has put up with the slow and expensive method of cutting and nailing timber for shoring.

Block Production in 1948

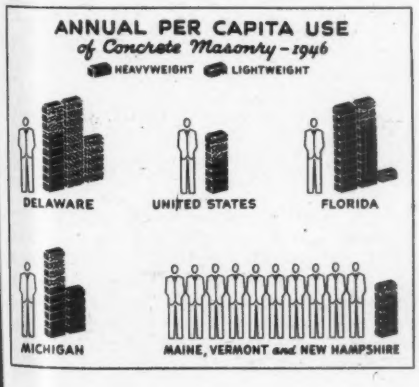
(*From page* 210)

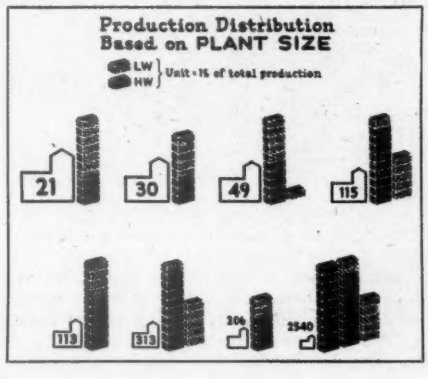
further reductions in their labor costs. The industry looked forward to seeing at least one of the new super-capacity designs at the Concrete industries Exposition in Cleveland late in January.

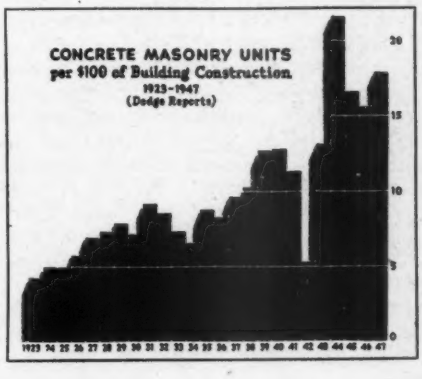
Leading producers in the N.C.M.A. feel that some time in 1949 the production of concrete masonry units will exceed demand, placing squarely before the industry the need for increased merchandising effort. Production in 1949 might very well show a gain over 1948, but any major increase would certainly have to come as a by-product of more vigorous promotional effort. In recognition of this need the industry's association was planning to increase its staff to the end that a greater share of its activities can be directed toward promotion and sales. Such expansion of association activities was possible only because of a growing realization among producers of the necessity for joint efforts supported and financed by their participation in N.C.M.A.

In writing about the outlook for masonry units a year ago, PIT AND QUARRY had this to say: "Despite the uncertainties that loomed ahead, confidence was the dominant note in the concrete masonry industry at the outset of 1948. Although in most sections of the country clay products were back in the competitive picture, concrete block had won its main battle for recognition and acceptance. From this point of view the industry was unquestionably on a sounder footing than at any time in its history. There were certainly new battles to win and new heights to scale, but the industry had demonstrated conclusively that it had the vigor, the ingenuity and the integrity to attain and hold for its product a firm place in the front rank of primary building materials." This still seems a fair appraisal.

• The charts above were prepared by Paul Woodworth of The Waylite Company to show graphically the current status of the concrete masonry unit industry.



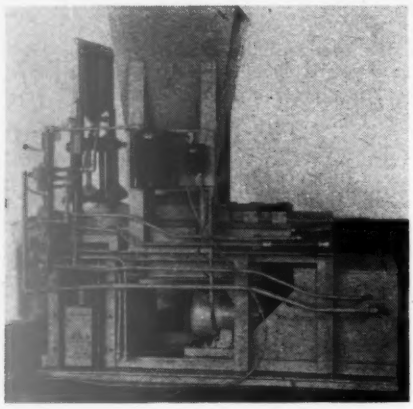




NEW MACHINERY and SUPPLIES

● Two-Block Machine

Scheduled for exhibition at the forthcoming convention of the National Concrete Masonry Association, is the new two-block machine of the F. C. George Machine Co., 100 S. Westmoreland Drive, Orlando, Fla. This is a direct-



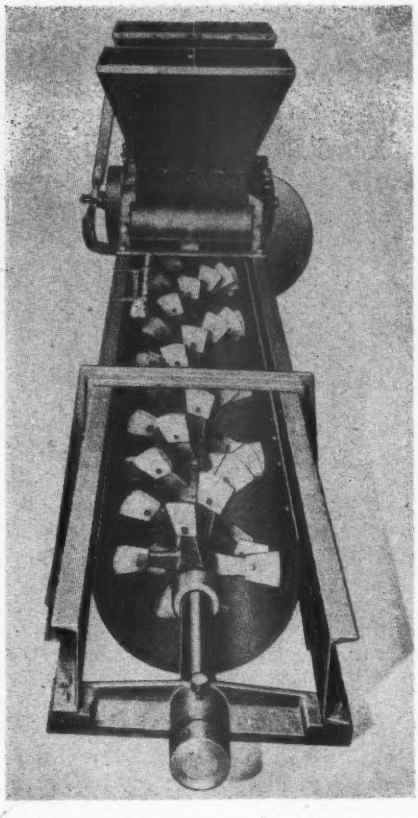
action, hydraulically-operated machine with a capacity of 480 units per hour.

The new product combines "Press-Pac" action, a patented feature of the George company, with high-frequency vibration. Cored pallets are used for economy. Additional new features promoting economy are the direct-acting hydraulic cylinder and a heavier frame design. The all-in-one mold box, states the manufacturer, allows quick change-over and can be used to make several combinations of two 8- by 8- by 16-in. equivalents. The same machine, with the same mold box, can be equipped to make two-cell, three-cell or George "Redi-Furred" block, another exclusive George feature.

● Concrete Mixer

The Yoder Co., 5500 Walworth Ave., Cleveland 2, O., cite the following outstanding advantages of Yoder No. 600 continuous mixer: lower first cost; slower speed, with less wear and reduced maintenance cost; automatic proportioning; maintenance of constant head of concrete; steam injection pipe in barrel for heating the mix and accelerating colloidal action in winter; lighter weight (about 4000 lbs.); lower power cost (7½-hp. motor).

Two hoppers are provided—for aggregate and cement, respectively. Two volumetric belt feeders with adjustable gates control the flow of the material in the correct proportions from the hopper into the mixing barrel. Feeding of materials into the barrel is controlled by one clutch, and the operation of the mixing paddles through another. In its travel through the 10-ft. barrel, the charge is mixed by 68 paddles at a speed of 30 r.p.m., a total of 2080 paddle strokes per minute.



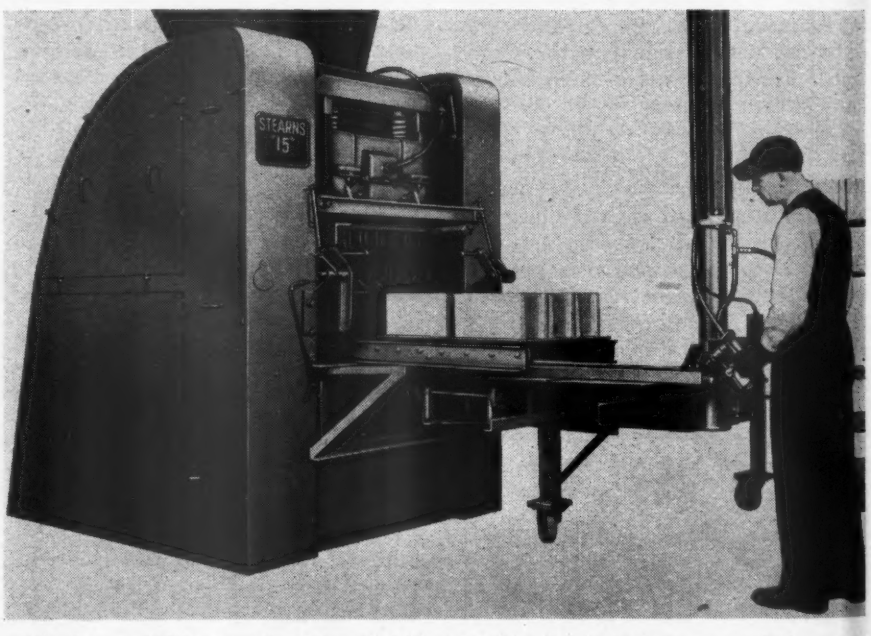
The manufacturer states that virtually the only wearing parts are the barrel and the paddle tips. This unit is now distributed by the Gene Olsen Corp., Adrian, Mich.

● Feeder and Elevator

The Kent 410 feeder, operating with the 139A Kent elevator, is driven by the elevator chain or belt which transmits power through a crank to a reciprocating feeder plant under the hopper. An adjustable gate above this reciprocating plate governs the amount of material discharged into the boot at each stroke of handling, as desired. The reciprocating action keeps the material in the hopper agitated and prevents it from arching over or clogging.

The drive has heavy channels at right angles to the main members, providing the means of attaching the elevator to the bin.

● Introduction of a two-motor drive with independent control of dual packerheads is the latest important improvement made in McCracken pipe machines. In the Model T bell-up machine, this improvement permits independent r.p.m. control of the packerhead and the bell packer. This model has a range of pipe sizes from 4 to 36 inches. Manufactured by the Concrete Pipe Machinery Co., of Sioux City, Ia.



● The Stearns "15" automatic plain pallet block machine is said to have a reported average output of 15 standard 8-in. units per minute. One of the reasons advanced by the manufacturer for the exceedingly high production of the "15" is the patented feature of vibrating the pressure head as well as the mold assembly. The mold box vibration is transmitted by a high-speed unbalanced shaft while pressure head vibration is applied with a Syntron. Attachments are available for making a wide variety of sizes and types of precast concrete building units on a proportionate production basis. Manufactured by the Stearns Manufacturing Co., Inc., Adrian, Mich.

● Concrete Hauling Body

The Hercules Steel Products Corporation of Galion, O., manufactures an improved body for hauling air-entrained concrete called the "Aircreter." The unit is manufactured in two sizes, the "Junior," hauling 2—2½ cu. yds. of concrete; the "Senior," 3—4½ cu. yd.

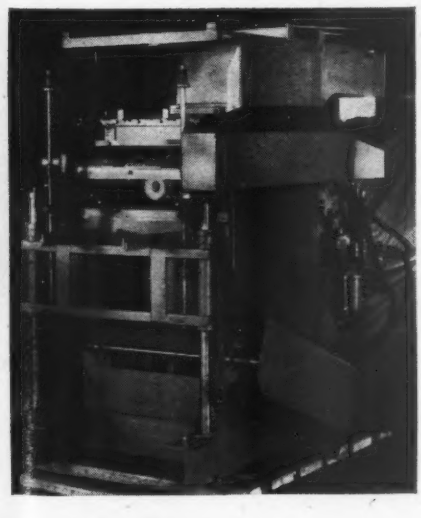
Time-tested in the field, the Aircreter continues to feature the "Hercules Secret," with its basic principle of pressuring the concrete off the bottom first, thereby overcoming possible hauling segregation and effecting complete discharge of the concrete. The Aircreter is said to incorporate many new improvements including full radii discharge operation; new high-pressure radii gate; controlled discharge angle indicator; finger-tip throttle control; insulated body for cold and hot weather hauls; and the newly perfected rollaway chute. The latter is provided with adjustable facilities to handle even very low slump concrete and hinged for carrying position.

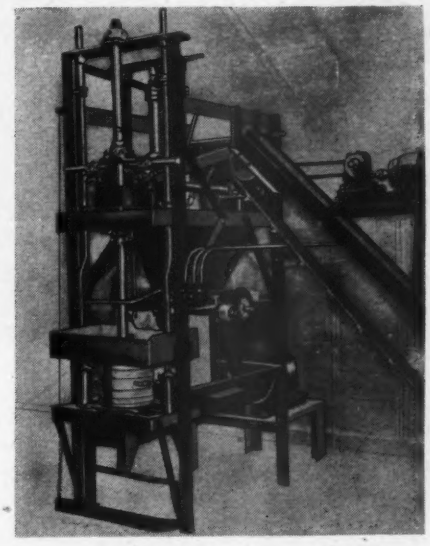
● Automatic Block Machine

"The machine, not the operator, controls the production," says the manufacturer in describing the "FMC 180" automatic concrete block machine. Factory adjustment is for 180 complete cycles per hour, but the rate of production can be varied. The hydraulic system of this one-man machine is powered by a 1½-hp., 60-cycle, 3-phase General Purpose motor. A six-way valve controls the low-pressure hydraulic operation.

The FMC 180 is operated with plain pallets—wood, steel or marine plywood. The operator merely places the pallet on the mold box and off-bears the block. A pushbutton controls the complete operation.

Vibrators are all-steel in construction and operate with unbalanced shafts, connected by two helical, square-tooth cut gears. They are powered with 2-hp. 3-phase, 60-cycle motors. All 8-in. vibrators are interchangeable when used with 8-in. mold boxes and 12-in. vibrators when used with 10- or 12-in. mold boxes. Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.





The Gene Olsen Corp. of Adrian, Mich., has marketed a new drain tile machine which is said to be the fastest machine on the market. This "Gocorp" machine reportedly will make as many as 12 tiles per minute in sizes ranging from 3 to 14 inches. The unit is powered with a 15-hp. motor. A gear mechanism drives the packerhead.

Is your cement storage bin 100 feet or more from the siding? Are there any obstructions between storage and siding regardless of distance to make mechanical handling impractical?

Look into the merits of the Robinson Air-Activated Conveyor. With it, you can get shipments in hopper bottom cars; unload each car in two hours or so; and operate season after season without heavy maintenance. Pipes do not clog because the cement does not encrust. There are no continuously moving parts, screw feeds, bearings, etc., that so frequently cause shutdowns and maintenance.

If you wish to save in costs for handling your bulk cement, investigate the Robinson System. Write to us.

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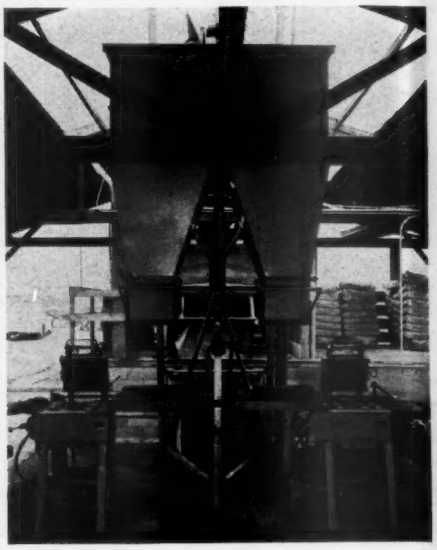
● Dual-Block Machine

Mortarless Tile Machine Co., Inc., 2623 Riverside Drive, Los Angeles 26, Calif., now furnishes a hydraulic Mortarless block machine producing two units simultaneously. A redesigned power pack, according to the manufacturer, insures production of superior block. The



design of the block (Type B) has been retained, except that the cells are rearranged so that the length of the cars is reduced from 2 in. to 1 in. This change materially lessens the number of culls in handling and transporting, states the manufacturer.

The newly-developed Mortarless radiant heat system necessitated a double unit (6-in. model) which is rated for a production of 1200 units per 8-hr. day per operator.

Another new Mortarless product is the Model 280 skip hoist assembly, claimed to effect a great reduction in the handling of concrete in the feeding operation. It is a double-hopper hydraulic unit operated by a 7½-hp. compressor which also runs the block machine.

Mortarless Tile's new Model D-12 concrete mixer is a 12-cu. ft., two-sack-batch, paddle type with replaceable heat-treated steel liner staves. The mixer has ball bearings throughout, roller chain drive running in oil, and a 10-hp. motor and is mounted on steel I-beam skids.

● Tamper Machine

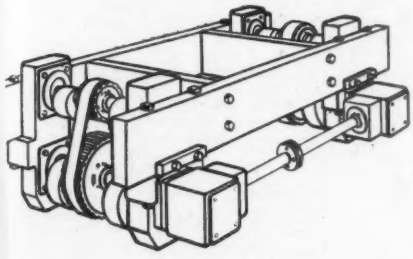
For moderate-sized concrete block plants, the Multiplex Concrete Machinery Co. of Elmore, O., has developed a tamper block machine which is supplied with either 4 or 5 tamping bars. An advantage of this machine is that it can be purchased as a hand-operated stripper and strike-off machine which can be converted into a power-operated, semi-automatic machine later on.

● Waterproofing Compound

The Hydrozo Products, Inc., Madison, Wis., has developed a colorless waterproofing compound which is said to be both acid- and alkali-resistant. The compound penetrates deeply into concrete, leaving a heavy gum deposit that seals out moisture. It may be applied with either a brush or a spray.

● Synchronized Dual Vibrator

The Oswalt Synchronized Dual Vibrator developed by the Oswalt Engineering Service Corporation of Forest Park, Ill., makes possible rapid production of uniform, quality block, with



greatly reduced breakage. These results are accomplished by means of a new, thoroughly engineered vibrating attachment for standard mold boxes.

The attachment provides: a pair of secondary vibrator shafts driven at twice the speed of the primary shafts, which correspond to the conventional vibrator equipment; a means of synchronizing the two vibrator motors, so that both ends of the mold box go up and down together.

The results are reportedly a sharp increase in the down thrust of the mold and a more gentle uplift, accomplished by the proper timing of the eccentric shafts and also uniform, full amplitude vibration for all block in the mold.

More rapid and thorough filling of the mold box and better head compaction are accomplished.

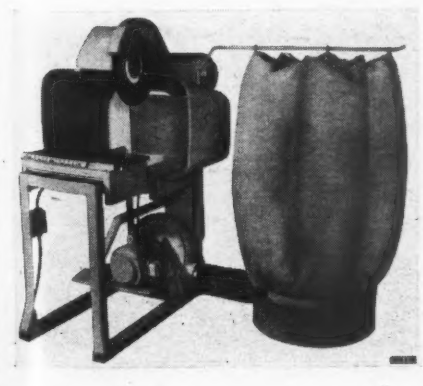
The output of the block machine at the Oswalt Company's plant has been increased from 10 to 15 standard 8-in. block per minute without sacrifice of quality by the use of this device.

● Dry-Cut Masonry Saw

The dust-free "Fireproofer" dry-cut masonry saw, produced by the Martin Fireproofing Corp., P. O. Box 27, Buffalo 17, N. Y., is a completely new product which eliminates the dust hazard by means of a powerful vacuum.

This vacuum collects the dust particles at the rotating saw blade itself, as well as all loose dust from the brick or tile. Thus the operator may capitalize on the speed, efficiency and accuracy of dry-cutting all types of masonry products without costly delays for dust removal.

Individual 1½-hp. electric motors power both the saw blade and the dust-collecting vacuum. These 60-cycle, a.-c., single-phase motors operate on either 110-120 or 220-230 volts. The dust-free Fireproofer features welded, all-steel unit construction for greater strength and durability.



Concrete Transport Mixer Co. of 4985 Fyler Avenue, St. Louis, Missouri, has just announced the inauguration of a new sales policy for distribution of their Transport Truck Mixers and "Hi-Lo" truck mixers. For the past 18 years this company has merchandised their products directly with their own sales organization, and now feel the need to set up a dealer distributor organization.

The W. W. Williams Company of Columbus, O., will handle the entire state of Ohio, and the three counties adjacent to Cincinnati in Kentucky. The Williams Company has offices in Columbus, Cincinnati, Toledo, and Cleveland.

The Capitol Equipment Company of Harrisburg, Pa., will service 32 counties in middle eastern Pennsylvania. The president of the company, J. F. Robbins, has until just recently been sales manager of the Koehring Company of Milwaukee.

The F. S. Ray Company of Houston, Texas, will cover 35 counties in southeastern Texas adjoining Houston.

M. R. Latimer of Denver is getting compliments on his low-cost Dumpcrete Concrete. He writes, "The city inspector says our concrete is *superior to that mixed in transit.*"

Latimer mixes his air-entrained concrete at a central plant where the mix can be carefully controlled. "After a recent 13-mile, 35-minute haul," he reports, "concrete was well-graded and uniform, with no surface water on the load; and it could have been hauled a lot farther without segregation.

"Best of all," he continued, "our overall costs have been substantially reduced."

Concrete men in 42 states are getting better concrete at lower costs with the Dumpcrete. You can too. Write for more information.

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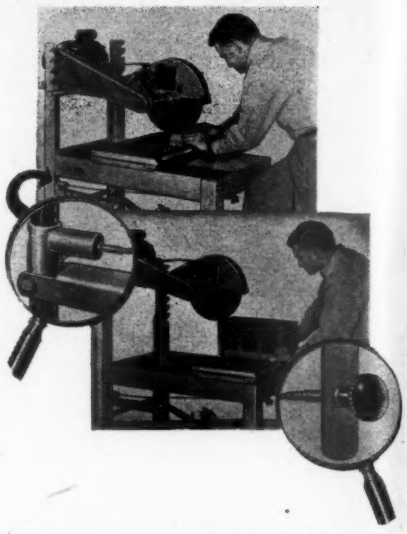
● New Masonry Saw Models

Continued research in the field of masonry cutting by the Clipper Manufacturing Company, originators of Masonry Saws, has developed new and highly efficient 1949 Clipper Masonry Saw Models.

The 1949 models of the Clipper Manufacturing Company's masonry saws incorporate such production speed-up features as the "Adjust-a-cut" control for instantaneous one-man adjustment of the cutting head; "Streamlined" ball bearing conveyor cart—precision balanced and designed — with aluminum-alloy castings which return the flow of water when cutting wet with the Model HD-49; and a new improved "Snap-on" blade guard cover. Three separate units —the cutting head assembly, the saw frame, and the conveyor cart (none weighing over 154 lbs.) are said to make clipper saws the most portable of any complete masonry cutting equipment.

Unlimited types of materials of all sizes and shapes for construction and industrial uses — glazed tile, fire brick, concrete products, acid and silica brick, natural stone, magnesite brick and roofing tile — are now more easily and quickly cut. For example, cutting vitreous brick tile takes only 21 seconds; fire clay brick, 4 seconds; concrete blocks, 19 seconds; chrome magnesite brick, 15 seconds.

Four of the nine Clipper models—the wet- and dry-cutting (dustless) Model



HD-49, the H-49, the larger industrial Model J-49 and the smaller Model E-49 —are equipped with the new "Adjust-a-cut" control development. By merely pulling the control knob at the front of the saw frame, one man can lower or raise the cutting head to the desired position. Compensation for changes in material sizes is thus made without lost time or duplication of effort.

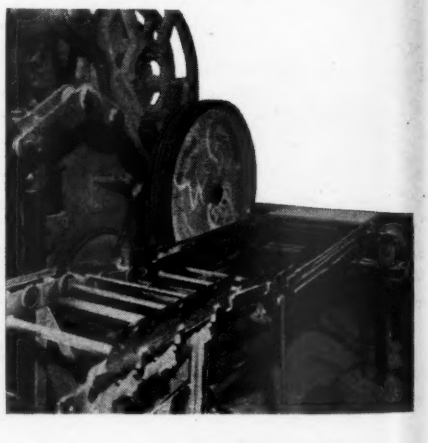
It has been announced that Clipper will continue in 1949 to supply any contractor or industrial plant with any of the nine Clipper models for trial on the job.

Research by technicians in the Clipper laboratory has produced several new and superior specifications of Clipper blades (both wet and dry) and Clipper diamond blades. Over two dozen exact blade specifications are now available for the fast and efficient cutting of all masonry materials. The Clipper Manufacturing Company, 2800 Warwick, Kansas City 8, Mo.

● Automatic Pallet Feeder

The Domine automatic pallet feeder offers block manufacturers a way of modernizing plain-pallet, magazine-fed machines, according to the maker, Domine Automatic Machinery Corp., 155 Gould Street, Rochester 10, N. Y. The ¼-hp. motor of the feeder is said to do the work of an operator who handles 50 tons of steel pallets per day, making the job a one-man operation. In addition, lift truck operations are halved by the elimination of moving empty racks.

Another advantage cited by the man-



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Concrete Block Plant Equip. Co., Birmingham, Ala.
Concrete Transport Mixer Co. St. Louis, Mo.
Contractors Mach. & Equip. Co., Hamilton, Ont., Canada
C. H. Jones Equip. Co. Salt Lake City, Utah
C. J. Rahn Co. Newark, N. J.
Wittemann Machinery Co. Farmingdale, N. J.
Kent Machine Co. Cuyahoga Falls, Ohio
Fleming Mfg. Co. St. Louis, Mo.
F. C. George Machine Co. Orlando, Fla.
Lith-I-Bar Co. Holland, Mich.
Llewellyn Mach. Corp. Miami, Fla.
R. S. Reed Corp. Three Rivers, Mich.
Stearns-Oakes Sales Co. Adrian, Mich.
Slane & Sons Greenfield, Mass.

Yes, for SAFER, FASTER, BETTER handling of concrete blocks—Truck-Man has what block manufacturers demand:

- Ample capacity—many carry over 60 blocks.
- Easy lift and drop, soft start and stop—handles green blocks gently.
- Hydraulic lift and gasoline power—ease and speed handling.
- Cat-like maneuverability possible only with 360° steering.
- Easy on-and-off, simple and safe operation by unskilled drivers.
- Low first cost, low operating cost, low maintenance cost.

Ask the Truck-Man dealer in your territory about performance, service and economy, or write us for catalog.

a product of

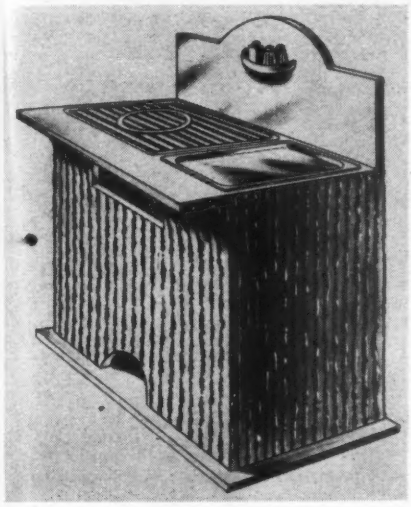
truck-man INC.

1422 West Ganson, Jackson, Mich.

ufacturer for the automatic feeder is that cured blocks can be cubed in front of the machine. Since only a few pallets are carried in the magazine, the life of the pallet feeder chain is considerably lengthened.

● Concrete Barbecue

The new model precast concrete barbecue for backyard or patio, illustrated here, is a recent addition to the line manufactured by Currier's of Glendale, (Calif.). Although a highly profitable



item for the products manufacturer, it is sold and installed complete with cast-iron grill and aluminum griddle for only $39.50.

Besides producing barbecue and precast vermiculite-lined incinerators at its own concrete-products plant, the Currier concern supplies the forms and necessary metal parts to licensed concrete-products plants in many parts of the United States.

● Elevating Cement Charger

Among new equipment developed by the C. S. Johnson Company of Champaign, Ill., is an elevating cement charger, a highly portable unloading plant which can be dismantled, moved

and set up for operation without the use of cranes or auxiliary equipment. A standard dump truck, used as transport, erects the one-piece elevator unit.

As a means of unloading cement from box cars or hopper-bottom cars, the new unit includes a gasoline-engine drive or an electric motor, as well as a 1,000-lb. capacity weigh batcher and a box car receiving hopper. A 10-in. diameter screw conveyor of adjustable height unloads hopper-bottom cars. Clutch and throttle controls extend to the operator's platform and a small air compressor attaches to the engine for cement aeration.

This charger features an all-welded, weather-tight casing with large access doors. Capacity is 300 barrels per hour, rated with buckets 80 percent filled. A moderate storage facility allows for moving railway cars without interrupting batching. As a one-piece unit, it requires only the removal of the weigh batcher and screw conveyor for transporting.

As an optional feature, the upper hopper can be equipped with two weigh batchers for increased speed in loading two-compartment batch trucks. For increased storage capacity, when used as a car unloading transfer plant without batchers, a 50-barrel capacity extension section can be bolted to the upper hopper.

Arthur D. Fargher, assistant sales manager for the Southwestern Portland Cement Company for the last 25 years, died recently.

MORTARLESS RADIANT HEAT*
Opens Doorway to New Profits

● Economical radiant-heat installations using the continuous cores of precision-made Mortarless Interlocking blocks are now available.

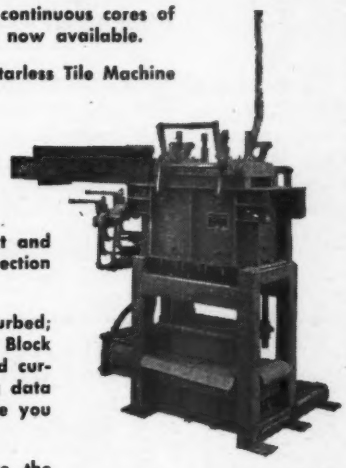
● After two years' development in the field, Mortarless Tile Machine Co. now offers the concrete products industry its most promising development in a decade.

● Engineered by recognized architects and heating experts, the Mortarless Method simply lays a floor with the cores of the Mortarless Interlocking blocks running horizontally, forming tight ducts. Result — the most practical, efficient and economical system of Dual Radiant and Convection Heating yet devised.

● Your existing plant layout need not be disturbed; merely add a Mortarless Interlocking Hydraulic Block Machine using your present batching, mixing, and curing facilities. This, together with the engineering data and detailed plans which we furnish, will enable you quickly to enter this new lucrative field.

● Sold on a protected territory basis, you are the *only* producer of these patented units in your area.

*Patent Pending.



Mortarless Interlocking Hydraulic Block Machines are available in both single-unit and two-at-a-time models. Investigate this sturdy, time-tried, dependable equipment.

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Sample pair — $1.00 — Dozen pairs — $11.40.

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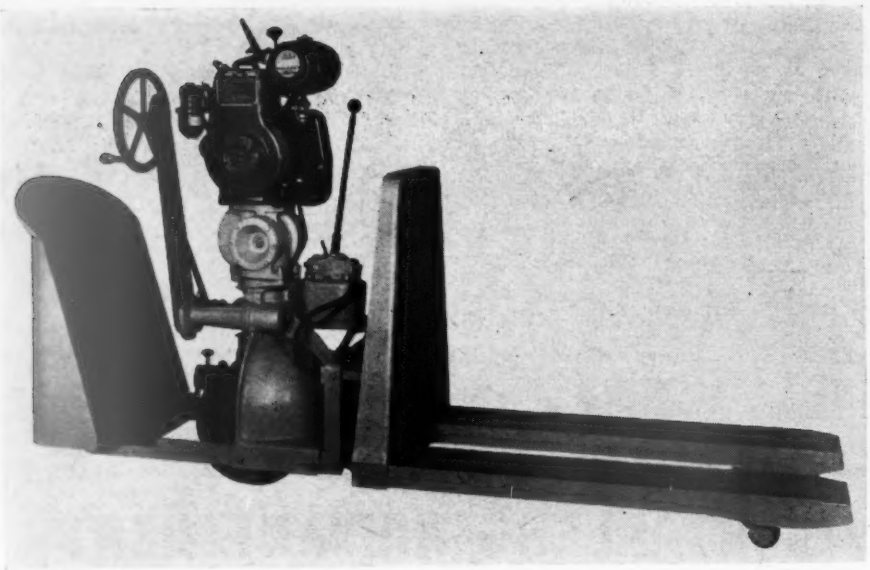

Truck-Man, Incorporated, Jackson, Mich., offers the "pallet toter", powered by a Wisconsin heavy-duty 3-hp. air-cooled engine. Forks of heavy channel steel are 9 in. wide and 48 in. long (standard). It has a capacity of 3000 lbs., but weighs only 920 lbs. empty. The Pallet Toter turns in its own length, facilitating operation in small areas. Dual drive wheels are equipped with 14 by 4½-in. six-ply industrial tires.

● New Model Block Machines

John J. Yellen, manufacturer of cinder and concrete block machines at 381 Jeffries Street, Perth Amboy, N. J., announces the completely redesigned and improved Yellen "Hi-Speed" block machine (Model B).

The new model is a two-block vibrator, completely mechanized. Virbration is accomplished by two eccentric cams mounted on a shaft which are driven by a 1-hp. motor. Other operations are accomplished by compressed air. The feed hopper and the stripping plate are operated by oversize air cylinders with built-in cushions to eliminate shock or

DOMINE AUTOMATIC PALLET FEEDER

Modernize Your Present Block Machine

Why have a man handle 50 tons of steel daily when a 1/4 H.P. motor will do the same work better?

Easily attached to any 18" x 26" pallet magazine fed block machine, makes it truly one man operated.

1. You cut your operating labor on each machine by one-half.
2. You cut your lift truck operations by one-half by eliminating moving of empty racks in plant.

3. You can cube your cured blocks in front of block machine.
4. You double the life of your pallet feeder chain as only a few pallets are carried in magazine.

*Patent Applied For

DOMINE AUTOMATIC MACHINERY CORP.

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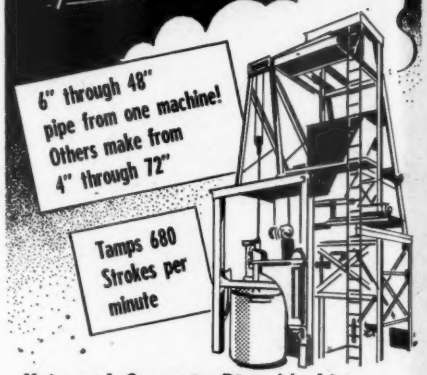
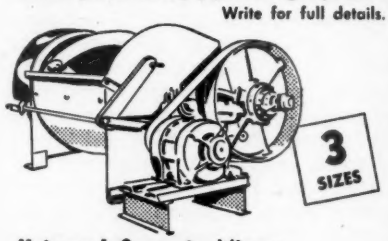
Universal

Pipe-Making Machines are real profit-makers because they're built by pipe-makers! ... They produce more pipe in fewer man-hours ... at greater profit!



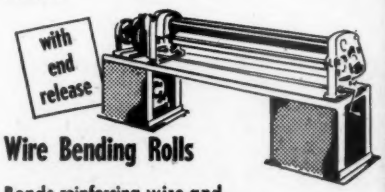
Universal Concrete Pipe Machines

Real money-makers because they make finest ASTM Specification pipe at lowest cost of operation and maintenance. Designed and built by experts with a quarter century pipe making experience. Write for full details.



Universal Concrete Mixers

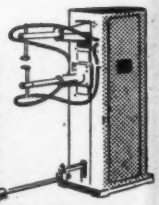
Work horses for manufacturers of concrete products. Simple, dependable over years of continuous operation. Save on first cost and upkeep. Capacities: 28, 42 and 50 cu. ft. Send for information.



Wire Bending Rolls

Bends reinforcing wire and steel plate to any radius, accurately, quickly. Quick, easy removal of completed cages. Extra heavy frame and oversize bearings, with covered gears and overload safety feature.

Wire Mesh Welder



Specially designed for welding reinforcing wire (but adapts for many other uses). Best there is for steady heavy-duty service. Fully enclosed in steel. Water-cooled electrodes. Heat control switch. Swivel foot pedal leaves both hands free.

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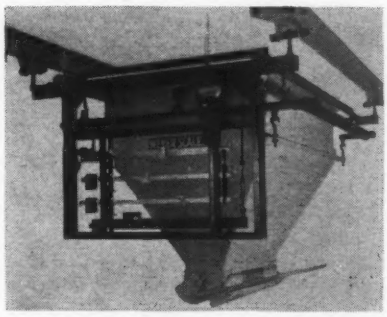
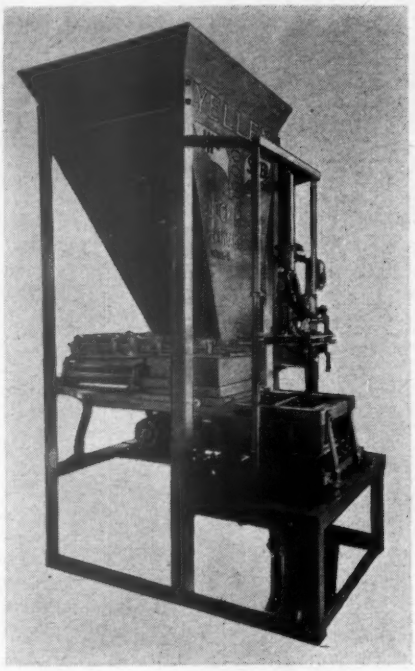


- STATIONARY OR TRAVELING TYPE
- MANUALLY OPERATED OR FULLY AUTOMATIC
- DIAL OR ANY NUMBER OF BEAMS
- SINGLE OR MULTIPLE COMPARTMENTS
- CLAM SHELL, SLIDE OR ROLLER GATES

SEND FOR BULLETIN NO. 211-B

MEYER SCALES, INC.
449 Central Ave.
Orange, New Jersey

jar. The machine is equipped with a new vibrating head, operated by compressed air, on which a patent is pend-



ing. A 5-hp. air compressor is used with the machine.

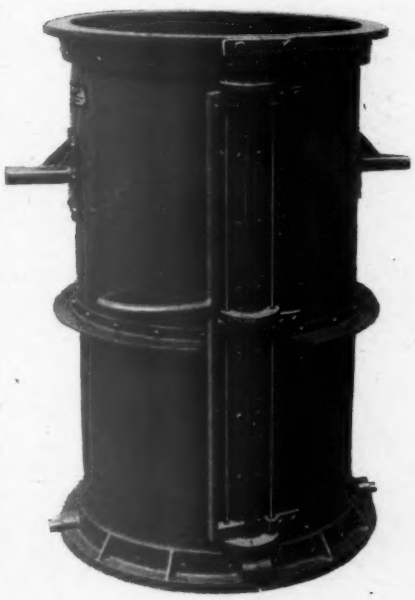
The new Hi-Speed can turn out two 8-in. blocks in 15 seconds. It will make any combination totaling 16 in. by 16 in.

All wearing surfaces are furnished with replaceable liners which can be duplicated locally in any shop.

The manufacturer has also developed a low-price hand-operated vibrator with a standard 16- by 16- in. mold box which will make any size of block turned out by the powered Model B.

● Pipe Jackets

"Perfection" split jackets for the concrete pipe industry are made and designed by the Eckel Engineering Co., 193 So. First Street, San Jose, Calif. They are constructed of cast iron, steel



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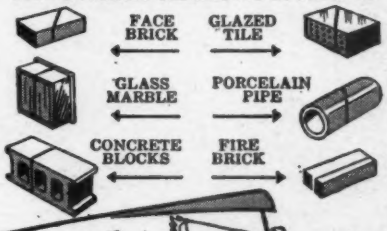
You'll be amazed how quickly and easily you can cut virtually any special length or shape from the hardest masonry materials. Clippers save time — save material, assure better workmanship on every job.

With the exclusive Clipper design, proven throughout the world and guaranteed to provide the fastest cutting speed and the lowest cutting costs.

DUSTLESS MASONRY CUTTING so fast and easy. Just turn on the circulating water system and slice through the hardest masonry materials. Foot Pedal control for varying material sizes or lock the cutting head at a set position, whichever is desired.

CLIPPER MAKES THESE CUTS IN SECONDS



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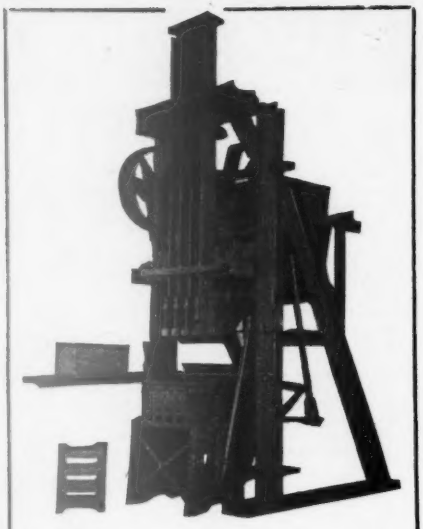

An All-Purpose Machine

The Junior Stripper will turn out more blocks per man than any other hand-operated machine on the market . . . 200 per hour being easily maintained! Nor has quality of output been sacrificed for the sake of speed. Units are uniformly dense, true to shape, of uniform texture.

Stearns Clipper Stripper Machines; Stearns Joltcrete Machines; Stearns Mixers; Cast iron and press steel pallets. Straublox oscillating attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.

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Install [SC]² PRECISION CONCRETE CONTROL It Includes

Moisture Meter

Makes a test for moisture content of fine or coarse aggregates in ONE minute. Accurate to ¼%.

Compensator

Delivers correct DRY weight of wet aggregates and ADDED water. Makes a graph record of EVERY BATCH.

[SC]² CONTROL produces *uniform concrete.* Is always approved by concrete engineers. Has definite sales value. Write for our booklet "Profits in Concrete."

SCIENTIFIC CONCRETE SERVICE CORP.
724 Salem Avenue, Elizabeth 3, N. J.

and manganese bronze and are built to provide a finished pipe length within the limits set by the American Society for Testing Materials.

Each section, the manufacturer states, is a full 180-degree semicircle; and a center band of high-tensile cast iron resists the direction of thrust, aiding in maintaining the original shape of the jacket. Models are available for making 17 pipe sizes—from 6-in. diameter to 48-in. diameter.

● Automatic Vibrator-Tamper

The new Universal automatic vibrator-tamper is a single-block automatic machine featuring one-man operation. Production is claimed to be 220 or more 8- by 8- by 16-in. units per hour.

Special features cited by the manufacturers are pushbutton operation, instantly adjustable vibration, and a precision finisher head for turning out per-

fect block tops. All machine movements are controlled by a heavy-duty roller cam system, obviating the maintenance problem incident to exposed gears, belts, etc.

An economy feature is incorporated in the special pallet support on which all variations of common blocks may be made with only one set of regular cored steel pallets. Universal Tampers, Inc., 1530 N. Adams Street, Peoria 3, Ill.

● Curing Room Door

Universal Door Carrier, Inc., 1111 Cornell Ave., Indianapolis, Ind., has developed an "Uni-Temp" door designed to meet the needs of the concrete industry for an insulated, steam-tight door for curing rooms. The door is available in both carrier and hinge types. Both models are self-locking and involve no levers to operate them or latches to close.

Universal's doors are adaptable to any width and height of opening through the use of uniform panels. Their corrugated surface provides ample dead air space for moisture condensation, permitting bottom drainage and preventing any contact between moisture and insulating material.

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● Concrete-products plants from New York to Florida and California are adding to their profits by manufacturing CURRIER'S Famous Precast Concrete "Mica-Lined" Incinerators and Barbeques.

● CURRIER Incinerators provide a practical answer to the safe disposal of combustible trash and conform to municipal fire regulations. CURRIER Barbeques are in wide demand with the trend toward outdoor living in the summer.

● Little equipment to buy . . . write for full details.

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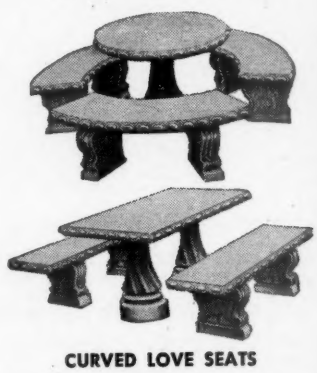

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